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CONFIDENCE INTERVALS FOR THE RELIABILITY CORRECTION FACTOR

by

Paul R. Milch

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UNITED STATES NAVAL POSTGRADUATE SCHOOL
Monterey, California

ABSTRACT:

As in the Polaris A3 program, whenever extensive test data collected under non-environmental conditions must be used to infer results valid under environmental conditions, the problem of estimation of a correction factor to transform non-environmental results into environmental ones will arise. In the Polaris A3 program, the ratio of mean times under environmental and non-environmental conditions was termed the K-factor. This report presents a solution to the problem of building exact confidence intervals for the K-factor for the case when time is measured in cycles and a specific sampling procedure is feasible.

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1. Introduction

The problem of how to utilize extensive test data, accumulated under non-environmental conditions, to infer results on system reliability under environmental conditions arises during the early stages of development of weapons systems. In particular, the problem of estimating the ratio of the mean times to failure under environmental and non-environmental conditions was discussed in a series of reports prepared by the Los Altos office of C-E-I-R, Inc., ([5], [6], and [7]) for the Special Projects Office. This ratio, usually labeled the K-factor, plays the role of a correction factor to transform results obtained under non-environmental conditions to produce new results that would apply under environmental conditions. Since the mean times to failure are unknown quantities under environmental as well as non-environmental conditions, their ratio, the K-factor, is unknown as well. In the reports quoted above, the authors developed estimates of the K-factor for the cases when time to failure is measured continuously as well as in cycles. They also developed confidence interval estimates for the K-factor when time to failure is measured continuously. Apparently exact confidence interval estimates of the K-factor have not been developed for "cycle-type items", i.e., when time to failure is measured in cycles. Although various approximate and asymptotic interval estimates described in the literature

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In this report, we develop a confidence interval for the K-factor when cycle-type items are tested. The sampling procedure applied, however, is not sampling to failure (as in [5], [6], and [7]), but is instead sampling to a fixed number of successes.

The confidence interval obtained is one based on the exact (conditional) distribution of the observable random variables. The confidence interval itself may not be called exact only by virtue of the fact that the observable random variables are discrete (see page 513 of [3]), but it should be distinguished from confidence intervals based on approximate distributions of the observable random variables. For this reason, the procedure described in this report is applicable even when only a small number of tests may be performed.

2. An Exact Confidence Interval for the K-Factor

We shall assume that a given number of cycle-type items are available for testing under environmental and also under non-environmental conditions. We shall not assume to have the same number of items available for testing under both conditions. In fact, in usual circumstances the number of items available for testing is much larger under non-environmental conditions, for obvious reasons. We further presume that items are tested a fixed number of cycles, or until they fail to function. This procedure is repeated with a given number of items under both environmental and non-environmental conditions until a fixed number of successes, i. e., cycles without failure, are achieved. The number of failures under environmental and non-environmental conditions are two (different) random variables that may be observed in the experiments. We introduce the following notation.

Let

r_1 = total number of successes (i. e., cycles without failure) of all items tested under non-environmental conditions;

r_2 = total number of successes of all items tested under environmental conditions;

X = total number of failures of all items tested under non-environmental conditions when tests run to the r_1^{th} success;

Y = total number of failures of all items tested under environmental conditions when tests run to the r_2^{th} success.

As the notation suggests, r_1 and r_2 are numbers fixed usually before the start of the experiments, and X and Y are random variables observed at the completion of the experiments.

To facilitate building our probabilistic model, we stipulate the following conditions and notations.

1) Failure or success during a given cycle may occur independently of other failures or successes during other cycles of the same or other items. This may restrict the number of cycles an item may be tested. Items whose future function is affected by their failure during a cycle cannot be tested after their first failure. If repair of an item, however, returns it to its original condition, then such an item may be tested a fixed number of cycles regardless of any number of failures during the tests.

2) The probability of failure, q_1, during a cycle under non-environmental conditions is the <u>same</u> for all cycles of all items. The same is true for the probability of failure, q_2, during a cycle under environmental conditions. We have then the following definitions:

   q_1 = probability of failure during a cycle under non-environmental conditions;

   q_2 = probability of failure during a cycle under environmental conditions;

$p_1 = 1 - q_1$ = probability of success during a cycle under non-environmental conditions;

$p_1 = 1 - q_2$ = probability of success during a cycle under environmental conditions.

3) Success or failure of an item during a cycle under environmental conditions does not affect the success or failure of any item under environmental conditions.

The above conditions imply that X and Y are independent random variables with the negative binomial distribution of parameters, r_1, q_1, and r_2, q_2, respectively. Therefore,

$$
\begin{aligned}
P(X = k) &= \binom{r_1 + k - 1}{k} p_1^{r_1} q_1^{k} \\
P(Y = k) &= \binom{r_2 + k - 1}{k} p_2^{r_2} q_2^{k}
\end{aligned}
\qquad (1)
$$

for $k = 0, 1, 2, \ldots$.

Next, we obtain the conditional distribution of X, given the condition $X + Y = m$.

$$
\begin{aligned}
P(X = k \mid X + Y = m) &= \frac{P(X = k,\ X + Y = m)}{P(X + Y = m)} \\
&= \frac{P(X = k)\ P(Y = m - k)}{P(X + Y = m)} \quad .
\end{aligned}
$$

The distribution of the sum $X + Y$ is computed routinely:

$$P(X+Y=m) = \sum_{x=0}^{m} P(X+Y=m \mid X=x)\, P(X=x)$$

$$= \sum_{x=0}^{m} P(X=x)\, P(Y=m-x)$$

$$= \sum_{x=0}^{m} \binom{r_1+x-1}{x} \binom{r_2+m-x-1}{m-x} p_1^{r_1} p_2^{r_2} q_1^{x} q_2^{m-x} .$$

Finally, for $k = 0, 1, \ldots, m$

$$P(X=k \mid X+Y=m) = \frac{\binom{r_1+k-1}{k} \binom{r_2+m-k-1}{m-k} q^k}{S_m(q; r_1, r_2)} \qquad (2)$$

where

$$S_m(q; r_1, r_2) = \sum_{x=0}^{m} \binom{r_1+x-1}{x} \binom{r_2+m-x-1}{m-x} q^x$$

and

$$q = \frac{q_1}{q_2} .$$

It is of special significance that the conditional distribution of X, given $X + Y = m$ (represented by formula (2)), does not depend on q_1 and q_2 themselves but merely on their ratio q. It is well-known that under the above conditions the mean number of cycles to the first failure (or between consecutive failures) is $\frac{1}{q_1}$ and $\frac{1}{q_2}$, respectively, under non-environmental and environmental conditions. Therefore, the ratio $q = \frac{q_1}{q_2}$ is also the ratio of the mean number

of cycles to failure under environmental conditions and the mean number of cycles to failure under non-environmental conditions, i.e., q is what we called the K-factor in the introduction. Since the (conditional) distribution of X, given $X + Y = m$, depends on q alone, a confidence interval for q may be based on this distribution. Indeed, as in [3], we may always find two real numbers $\bar{q}$ and $\underline{q}$ such that

$$\sum_{x=0}^{k} g_m(x; \bar{q}; r_1, r_2) = \frac{\alpha}{2}$$

and (3)

$$\sum_{x=k}^{m} g_m(x; \underline{q}; r_1, r_2) = \frac{\alpha}{2} \quad ,$$

where $g_m(x; q; r_1, r_2)$ is the conditional probability mass function of X, given $X + Y = m$ (presented in formula (2)). Then the interval $(\underline{q}, \bar{q})$ is a $100(1 - \alpha)\%$ confidence interval for q. This must be accompanied with the usual remark that when the observed value of $X = k = 0$ then $\underline{q} = 0$, and when $X = k = m$ (i.e., $Y = 0$) then $\bar{q} = \infty$, by definition.

One-sided confidence intervals are obtained in a similar manner. If $\bar{q}$ and $\underline{q}$ are determined respectively by

$$\sum_{x=0}^{k} g_m(x; \bar{q}; r_1, r_2) = \alpha \tag{4}$$

and

$$\sum_{x=k}^{m} g_m(x; \underline{q}; r_1, r_2) = \alpha \quad , \tag{5}$$

then $(\underline{q}, \infty)$ and $(0, \bar{q})$ are respectively lower and upper one-sided $100(1-\alpha)\%$ confidence intervals for q. The previous remarks concerning cases when $k = 0$ or $k = m$ apply here too.

Unfortunately, the (conditional) distribution $g_m(x; q; r_1, r_2)$ is not related to any well-known distribution in an explicit way (such as, e. g., the relationship between the binomial and F-distributions) to enable us to obtain percentiles of this (conditional) distribution without further computations. For this reason, we developed tables for the (conditional) distribution $g_m(x; q; r_1, r_2)$. Some of these are presented in tables I and II in the appendix.

3. Numerical Examples

It is to be expected that whenever non-environmental and environmental test data must be compared, the former will be more extensive than the latter, i. e., in most typical problems we shall find that $r_1 >> r_2$. For this reason, the two cases given most attention in our investigation were:

case 1) $r_1 = 2r_2$ and $r_2 = 300, 350, 400, 450, 500$; and

case 2) $r_1 = 10r_2$ and $r_2 = 10, 20, 30, 40, 50$.

For these two cases, we developed tables for the percentiles of the cumulative (conditional) distribution function

$$G_m(k; q; r_1, r_2) = \sum_{x=0}^{k} g_m(x; q; r_1, r_2) \quad . \tag{6}$$

The choice of m was governed by the fact that the number of failures under both environmental and non-environmental conditions (i. e., the values of Y and X) are usually quite small. For this reason, we let $0 \leq m \leq 12$ for case 1) and $0 \leq m \leq 10$ for case 2). Tables I and II of the appendix list the percentiles of $G_m(k; q; r_1, r_2)$ for cases 1) and 2), respectively. Other cases of interest have been considered. Tables for the distribution function (6) have been prepared (but have not been included in this report) for the following additional cases:

case 3) $r_1 = r_2 = 400, 500, 600, 700, 800, 900, 1000$ and

$0 \leq m \leq 10$; and

case 4) $r_1 = r_2 = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10$ and

$0 \leq m \leq 20$.

Next, we present a few examples of confidence intervals for q .

1) Suppose the experimental data results in four failures under non-environmental conditions when tests have been run until the 300th success (i.e., a total of 304 cycles), and in three failures under environmental conditions when tests have been run until the 30th success (i.e., a total of 33 cycles). Then, $r_1 = 300$, $r_2 = 30$, $k = 4$, and $m = 7$. Therefore, from Table II, we find that (.0325 , .6969) is a 90% confidence interval for q .

2) Suppose for $r_1 = 800$, $r_2 = 400$, we observed $X = 4$ and $Y = 6$. Then, we have $k = 4$ and $m = 10$. From Table I, we find that (.0895 , 1.151) is a 90% confidence interval for q .

3) For $r_1 = 800$, $r_2 = 400$, we observed $X = 1$ and $Y = 5$. Then, $k = 1$ and $m = 6$. From Table I, we find that (.0004 , 1.474) is a two-sided 99% confidence interval for q . We also find from the same data that (0 , .5241) is a one-sided 90% upper confidence interval for q .

4) For $r_1 = 1000$, $r_2 = 500$, we observed $X = 2$ and $Y = 5$. Then, $k = 2$ and $m = 7$. From Table I, we find that (.1029 , .7409) is an 80% confidence interval for q .

It may be observed that, in general, the confidence intervals for q were shorter when $k < m - k$ as compared to when $k > m - k$. Indeed, failures during non-environmental tests are usually less frequent than during environmental tests, which indicates that $q_1 < q_2$ or $q < 1$. This fact, of course, is born out by the preceding examples of confidence intervals for q.

APPENDIX

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION

$G_m(k; r_1, r_2)$

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 600$, $r_2 = 300$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
m=1								
0	499.500000 .166675	99.500000 .088234	49.500000 .055556	9.500000 .026315	4.500000 .005050	2.833252 .002513	1.500024 .000500	.500000
m=2								
0	15.325439 .077581	6.577637 .042458	4.504883 .027131	1.738477 .013031	1.082874 .002527	.792432 .001259	.501031 .000251	.207654
1	997.562500 .499786	198.921875 .316016	99.085938 .231244	19.216064 .144031	9.229248 .055586	5.897949 .038070	3.227783 .016342	1.205969
m=3								
0	4.509766 .050635	2.430176 .028013	1.825806 .017990	.860205 .008678	.579523 .001689	.442932 .000842	.295117 -.000168	.130695
1	26.697266 .242841	11.570068 .162189	7.984131 .122119	3.193604 .078543	2.053955 .031417	1.546411 .021680	1.032886 .009395	.500818
2	1494.000000 .849951	298.015625 .566278	148.500000 .432831	28.900391 .291608	13.944336 .137378	8.954590 .103229	4.953857 .055621	1.919250
m=4								
0	2.320557 .037639	1.386511 .020932	1.086414 .013477	.560724 .006517	.391760 .001270	.305609 .000633	.208722 -.000126	.095438
1	7.311279 .161426	4.012451 .109973	3.052734 .083664	1.514001 .054450	1.062793 .022077	.841132 .015281	.597742 .006647	.315405
2	37.802734 .420319	16.443604 .298688	11.380371 .236401	4.614258 .165942	3.002930 .082306	2.284668 .067615	1.556360 .034366	.796552
3	1988.750000 1.203711	396.765625 .822150	197.765625 .641345	38.552734 .448059	18.644043 .231274	12.001465 .181201	6.675293 .108264	2.632568

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 600, r_2 = 300$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
m=5								
0	1.499231 .029989	.949057 .016735	.761456 .010788	.413879 .005224	.295270 .001019	.233075 .000508	.161487 .000101	.075243
1	3.605225 .121234	2.207031 .083435	1.756848 .063824	.963531 .041798	.705090 .017070	.571619 .011833	.418671 .005157	.230420
2	10.002930 .281873	5.531982 .205243	4.230469 .164661	2.142334 .117480	1.528467 .059489	1.226111 .045491	.892767 .025159	.501672
3	48.798828 .601123	21.267578 .440277	14.742432 .356909	6.020508 .261182	3.942871 .143237	3.016113 .114032	2.075928 .069805	1.092212
4	2482.000000 1.558313	495.203125 1.079761	246.859375 .852332	48.173828 .608020	23.328125 .330511	15.038818 .265149	8.391357 .167865	3.344482
m=6								
0	1.089893 .024953	.715710 .013954	.582941 .009002	.327582 .004364	.236859 .000852	.188403 .000425	.131793 .000085	.062168
1	2.265381 .097227	1.475610 .067337	1.205237 .051684	.700391 .033980	.525110 .013938	.431763 .009672	.321936 .004221	.181720
2	4.823242 .212842	2.984863 .157001	2.392090 .176849	1.346106 .091310	1.003955 .046777	.826483 .035876	.621997 .019924	.366492
3	12.650879 .405273	7.026367 .304959	5.388916 .251080	2.760742 .187274	1.987061 .105365	1.605664 .084453	1.184436 .052260	.687823
4	59.724609 .783002	26.062500 .583856	18.083008 .480042	7.418213 .359900	4.877197 .209149	3.743408 .170825	2.592529 .111285	1.387244
5	2973.500000 1.912659	593.312500 1.337927	295.781250 1.064197	57.761719 .769513	27.998047 .432404	18.066162 .352179	10.102051 .231274	4.054688

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 600,\ r_2 = 300$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m=7				
0	.850195 .021383	.572595 .011974	.471252 .007732	.271008 .003751	.197803 .000733	.158191 .000365	.111407 .000073	.053011
1	1.615125 .081261	1.094653 .056521	.909027 .043481	.548425 .028661	.417755 .011795	.346686 .008188	.261578 .003576	.150165
2	2.984131 .171313	1.969299 .127399	1.621411 .103412	.970062 .074854	.742627 .038631	.620337 .029683	.476563 .016532	.289014
3	6.014648 .307013	3.745117 .234509	3.013428 .194690	1.720532 .146747	1.296851 .083790	1.076709 .067417	.822363 .041978	.502496
4	15.273438 .529810	8.506348 .406708	6.536133 .340002	3.373047 .260297	2.441406 .155719	1.981934 .128223	1.473962 .084614	.873602
5	70.595703 .965240	30.833984 .728284	21.408203 .604388	8.808594 .460388	5.806641 .277753	4.467041 .230664	3.106934 .156329	1.681470
6	3463.375000 2.266357	691.125000 1.595911	344.562500 1.276343	67.320313 .931671	32.650391 .535760	21.083984 .440948	11.807129 .296979	4.762695
				m=8				
0	.694690 .018722	.476563 .010498	.395209 .006782	.231152 .003291	.169910 .000643	.136432 .000321	.096544 .000064	.046243
1	1.241980 .069870	.865240 .048749	.726849 .037562	.450165 .024808	.346777 .010231	.289685 .007107	.220410 .003106	.128070
2	2.103516 .143542	1.446863 .107349	1.212256 .087421	.754865 .063523	.587915 .032950	.496552 .025350	.386237 .014144	.238843
3	3.683105 .247723	2.449463 .190997	2.026367 .159442	1.232764 .120990	.954987 .069737	.805853 .056254	.628619 .035171	.396277
4	7.190918 .402313	4.495850 .313849	3.626465 .264844	2.090332 .205151	1.586328 .124805	1.324194 .103259	1.020984 .068665	.638202
5	17.878418 .654773	9.976318 .509332	7.675537 .430176	3.981201 .335028	2.892822 .208630	2.355713 .174792	1.761853 .120227	1.058887
6	81.421875 1.147388	35.583984 .873022	24.716797 .729291	10.193359 .561792	6.732422 .347937	5.187744 .292279	3.619385 .203625	1.974854
7	3951.625000 2.619385	788.562500 1.853577	393.171875 1.488367	76.845703 1.094043	37.289063 .639911	24.091797 .530664	13.506592 .364050	5.468506

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 600$, $r_2 = 300$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m=9				
0	.586359 .016662	.407858 .009350	.340247 .006044	.201611 .002933	.149005 .000574	.120013 .000286	.085243 .000057	.041035
1	1.003711 .061333	.713452 .042889	.604449 .033092	.381689 .021886	.296460 .009043	.248883 .006283	.190570 .002747	.111713
2	1.603528 .123645	1.135303 .092863	.962891 .075756	.616687 .055232	.486206 .028756	.413666 .022146	.324805 .012374	.203687
3	2.576172 .207928	1.787915 .161365	1.505945 .135211	.955231 .103107	.753522 .059825	.642780 .048344	.508569 .030311	.327490
4	4.371338 .325140	2.922119 .256268	2.424805 .217542	1.491602 .169818	1.164355 .104480	.988525 .086689	.779095 .057948	.503320
5	8.356689 .498108	5.239746 .394080	4.234375 .336188	2.457031 .265179	1.873413 .168201	1.569788 .141681	1.218298 .098329	.773541
6	20.468750 .779869	11.438232 .612384	8.808594 .520990	4.586182 .410767	3.342041 .263074	2.727783 .223126	2.048340 .157977	1.243567
7	92.207031 1.329321	40.316406 1.017810	28.013672 .854437	11.572510 .663654	7.654541 .419098	5.905762 .355048	4.130127 .252362	2.267334
8	4438.375000 2.971436	885.687500 2.110840	441.625000 1.700024	86.339844 1.256384	41.912109 .744458	27.087891 .620990	15.200684 .432007	6.172363

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 600$, $r_2 = 300$

m=10

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.506921 .015022	.356543 .008436	.298749 .005453	.178851 .002648	.132739 .000518	.107166 .000258	.076361 .000052	.036910
1	.839880 .054694	.606219 .038318	.516931 .029592	.331335 .019596	.259015 .008106	.218243 .005634	.167926 .002464	.099149
2	1.287085 .108722	.930756 .081894	.796582 .066964	.520929 .048901	.414490 .025533	.354559 .019680	.280377 .011009	.177722
3	1.952148 .179370	1.395789 .139880	1.190662 .117542	.777814 .089935	.621539 .052443	.534357 .042435	.427094 .026666	.279279
4	3.040283 .273297	2.122559 .216962	1.794263 .184955	1.152148 .145160	.916504 .090005	.786908 .074854	.629474 .050223	.415924
5	5.052002 .403076	3.389648 .322424	2.819092 .276837	1.747754 .220227	1.371802 .141406	1.169543 .119525	.928436 .083454	.610034
6	9.514648 .594080	5.978760 .474823	4.837891 .408234	2.821045 .326208	2.158691 .213116	1.813965 .181781	1.414514 .129962	.908508
7	23.046875 .904907	12.893066 .715619	9.936279 .612170	5.188232 .487061	3.789063 .318518	3.098145 .272595	2.333740 .197131	1.427759
8	102.953125 1.510828	45.029297 1.162463	31.298828 .979584	12.946777 .765759	8.572998 .490814	6.621094 .418549	4.638672 .302100	2.558838
9	4923.375000 3.322510	982.500000 2.367168	489.906250 1.911316	95.802734 1.418542	46.519531 .849219	30.076172 .711621	16.889160 .500513	6.873779

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 600$, $r_2 = 300$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m=11				
0	.446320 .013683	.316687 .007688	.266370 .004971	.160785 .002415	.119739 .000472	.096876 -.000235	.069191 .000047	.033553
1	.720959 .049386	.526727 .034648	.451477 .026780	.292798 .017749	.230054 .007351	.194446 .005110	.150195 .002235	.089180
2	1.071033 .097066	.787213 .073298	.678394 .060017	.450836 .043908	.361273 .022977	.310339 .017719	.246777 .009920	.157703
3	1.559351 .157855	1.139636 .123553	.981354 .104053	.655292 .079832	.528741 .046731	.457245 .037852	.368292 .023824	.243665
4	2.293457 .236005	1.650769 .188342	1.413721 .161090	.935852 .126941	.754529 .079168	.653156 .065949	.528101 .044370	.354712
5	3.498535 .339117	2.453125 .273389	2.079102 .235822	1.346777 .188708	1.077686 .122241	.929596 .103595	.749402 .072641	.504114
6	5.727539 .481232	3.853516 .389105	3.209961 .336829	2.001953 .271558	1.577661 .179767	1.349341 .153949	1.076892 .110797	.716473
7	10.666260 .690051	6.713623 .555811	5.438232 .480652	3.183350 .387823	2.442627 .256984	2.056885 .223004	1.609814 .162982	1.043018
8	25.615234 1.029773	14.341797 .818864	11.059326 .703473	5.787598 .563684	4.234131 .374609	3.467041 .322821	2.618164 .237286	1.611340
9	113.656250 1.691968	49.726563 1.306921	34.572266 1.104602	14.315918 .867926	9.488525 .562921	7.333984 .482483	5.145752 .352484	2.849609
10	5406.875000 3.672363	1079.000000 2.623047	538.062500 2.122070	105.234375 1.580469	51.113281 .954041	33.054688 .802405	18.572021 .569391	7.572998

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 600$, $r_2 = 300$

m= 12

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.398657 .012569	.284955 .007065	.240399 .004570	.146106 .002220	.109119 .000434	.088428 -.000216	.063290 .000043	.030776
1	.631091 .045041	.465607 .031638	.400726 .024473	.262402 .016231	.207013 .006727	.175403 .004678	.135913 .002047	.081077
2	.915253 .087730	.681384 .066384	.590417 .054415	.397437 .039863	.320258 .020902	.276044 .016124	.220502 .009035	.141864
3	1.292456 .141071	.960663 .110736	.833228 .093412	.565912 .071829	.460083 .042172	.399695 .034190	.323859 .021547	.216229
4	1.825256 .207867	1.343726 .166563	1.161914 .142810	.786847 .112903	.640867 .070734	.558191 .059001	.455017 .039783	.309454
5	2.629883 .293073	1.902222 .237622	1.633618 .205670	1.091785 .165332	.885931 .107806	.770642 .091539	.628223 .064400	.429932
6	3.952637 .405212	2.780762 .330328	2.361084 .287335	1.539697 .233136	1.237585 .155811	1.071216 .133807	.868536 .096788	.592065
7	6.398438 .559442	4.314209 .456055	3.598389 .397192	2.254639 .323523	1.782300 .219067	1.528101 .189441	1.224585 .139453	.822577
8	11.812012 .785992	7.444824 .636890	6.035645 .553278	3.543701 .449799	2.724854 .305487	2.298584 .264966	1.804321 .196948	1.177173
9	28.171875 1.154346	15.784668 .922089	12.177734 .794812	6.384766 .640491	4.677490 .431122	3.834229 .373572	2.901367 .278119	1.794324
10	124.328125 1.872620	54.408203 1.451074	37.833984 1.229468	15.680176 .970062	10.400635 .635211	8.044189 .546716	5.650879 .403351	3.139160
11	5888.750000 4.021484	1175.250000 2.878174	586.000000 2.332275	114.640625 1.742017	55.689453 1.058765	36.021484 .893225	20.250000 .638477	8.269775

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 700 \quad r_2 = 350$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m=1				
0	499.500000 .166675	99.500000 .088234	49.500000 .055556	9.500000 .026315	4.500000 .005050	2.833252 .002513	1.500024 .000500	.500000
				m=2				
0	15.323242 .077547	6.576660 .042439	4.504150 .027120	1.738110 .013027	1.082629 .002526	.792218 .001259	.500879 .000251	.207562
1	997.812500 .499817	198.968750 .316016	99.109375 .231244	19.220459 .144031	9.231201 .055583	5.899170 .038066	3.228271 .016338	1.206152
				m=3				
0	4.508301 .050589	2.429199 .027986	1.625073 .017971	.859778 .008671	.579187 .001688	.442657 .000941	.294904 -.000168	.130603
1	26.701172 .242749	11.571045 .162128	7.984863 .122058	3.193604 .078505	2.053955 .031398	1.546289 .021669	1.032764 .009390	.500726
2	1494.750000 .850134	298.156250 .566370	148.578125 .432861	28.914063 .291608	13.950439 .137378	8.958496 .103198	4.955811 .055609	1.919861
				m=4				
0	2.319336 .037589	1.385596 .020906	1.085620 .013458	.560266 .006508	.391364 .001268	.305304 .000632	.208478 -.000126	.095316
1	7.310791 .161304	4.011963 .109882	3.052246 .083587	1.513635 .054400	1.062427 .022054	.840796 .015262	.597467 .006639	.315222
2	37.816406 .420227	16.448730 .298596	11.383789 .236310	4.615479 .165881	3.003662 .082260	2.285156 .062580	1.556543 .034343	.796521
3	1990.250000 1.204199	397.046875 .822394	197.906250 .641498	38.580078 .448120	18.656738 .231274	12.009521 .181701	6.679443 .108264	2.634033
				m=5				
0	1.497949 .029935	.948181 .016704	.760663 .010768	.413391 .005214	.294873 .001017	.232739 .000507	.161243 .000101	.075117
1	3.604248 .121082	2.206299 .083324	1.756055 .063736	.962952 .041741	.704602 .017044	.571161 .011814	.418304 .005150	.230176
2	10.004639 .281689	5.532471 .205090	4.230957 .164508	2.142334 .117358	1.528284 .059428	1.225928 .045445	.892523 .025132	.501428
3	48.826172 .601062	21.279297 .440186	14.750488 .356848	6.023438 .261090	3.944580 .143176	3.017334 .113971	2.076416 .069760	1.092334
4	2484.250000 1.559229	495.671875 1.080310	247.093750 .852698	48.218750 .608203	23.349609 .330542	15.052246 .265179	8.398682 .167834	3.347168

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 700 \quad r_2 = 350$

TABLE OF G (M,R1,R2,0,K)   M= 6   R1 = 700   R2 = 350

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m=6				
0	1.088611 .024896	.714795 .013919	.582117 .008983	.327032 .004353	.236432 .000850	.188068 .000424	.131519 .000084	.062035
1	2.264160 .097063	1.474634 .067219	1.204321 .051589	.699695 .033916	.524530 .013912	.431244 .009653	.321509 .004212	.181445
2	4.823242 .212598	2.984375 .156787	2.391602 .126697	1.345618 .091184	1.003467 .046708	.826025 .035823	.621570 .019893	.366156
3	12.656006 .405060	7.028809 .304816	5.390625 .250897	2.761230 .187122	1.987305 .105273	1.605725 .084366	1.184375 .052203	.687640
4	59.773438 .783124	26.083984 .583856	18.097168 .480011	7.423340 .359839	4.880371 .209058	3.745605 .170734	2.593994 .111194	1.387732
5	2977.000000 1.914246	594.000000 1.338843	296.140625 1.064868	57.830078 .769910	28.029297 .432526	18.086426 .352240	10.113037 .231274	4.058594
				m=7				
0	.848944 .021325	.571649 .011943	.470428 .007711	.270428 .003740	.197375 .000731	.157825 .000364	.111133 .000073	.052874
1	1.613721 .081085	1.093555 .056395	.908020 .043382	.547693 .028596	.417145 .011764	.346136 .008169	.261121 .003568	.149860
2	2.983154 .171039	1.968445 .127185	1.620618 .103229	.969360 .074717	.741986 .038554	.620258 .029622	.476044 .016498	.288647
3	6.015869 .306738	3.745605 .234265	3.013428 .194476	1.720349 .146564	1.296545 .083668	1.076343 .067314	.821997 .041913	.502130
4	15.283203 .529676	8.511230 .406494	6.539795 .339819	3.374512 .260114	2.442383 .155566	1.982483 .128101	1.474207 .084522	.873541
5	70.669922 .965546	30.865234 .728436	21.429688 .604449	8.817139 .460358	5.811768 .277661	4.470947 .230573	3.109375 .156238	1.682446
6	3468.250000 2.268799	692.062500 1.597375	345.046875 1.277380	67.414063 .932312	32.695313 .535974	21.111328 .441071	11.822754 .297009	4.768555

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 700 \quad r_2 = 350$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m=8				
0	.693408 .018665	.475555 .010463	.394354 .006759	.230573 .003281	.169452 .000641	.136066 .000320	.096269 .000064	.046101
1	1.240576 .069687	.864050 .048615	.725781 .037459	.449371 .024740	.346106 .010200	.289105 .007086	.219922 .003096	.127734
2	2.102295 .143237	1.445825 .107135	1.211279 .087227	.754041 .063378	.587183 .032870	.495880 .025289	.385657 .014110	.238416
3	3.682861 .247357	2.448975 .190692	2.025879 .159167	1.232214 .120776	.954376 .069603	.805273 .056143	.628070 .035098	.395819
4	7.193848 .402008	4.497314 .313544	3.627686 .264569	2.090576 .204907	1.586328 .124652	1.324072 .103107	1.020740 .068554	.637866
5	17.894043 .654712	9.984375 .509180	7.681641 .429993	3.983887 .334845	2.894531 .208447	2.356934 .174640	1.762585 .120105	1.059009
6	81.527344 1.147998	35.628906 .873389	24.748047 .729504	10.205322 .561853	6.739990 .347876	5.193359 .292218	3.623047 .203534	1.976440
7	3958.125000 2.622803	789.875000 1.855713	393.812500 1.489893	76.970703 1.095020	37.349609 .640247	24.128906 .530908	13.527588 .364111	5.476563
				m=9				
0	.585077 .016601	.406891 .009317	.339362 .006021	.201031 .002923	.148547 .000571	.119617 .000285	.084961 .000057	.040894
1	1.002185 .061142	.712201 .042756	.603320 .032985	.380865 .021817	.295789 .009012	.248273 .006262	.190051 .002738	.111407
2	1.602124 .123340	1.134082 .092619	.961761 .075594	.615771 .055083	.485413 .028672	.412933 .022081	.324194 .012340	.203229
3	2.575439 .207532	1.787061 .161029	1.505090 .134937	.954407 .102863	.752759 .059680	.642078 .048226	.507928 .030234	.326971
4	4.372070 .324744	2.922363 .255902	2.424805 .217236	1.491235 .169543	1.163928 .104266	.988037 .086521	.778607 .057829	.502832
5	8.362305 .497803	5.242920 .393805	4.236572 .335883	2.457764 .264935	1.873840 .167987	1.570032 .141498	1.218298 .098177	.773328
6	20.492188 .779919	11.450195 .612323	8.817627 .520898	4.590332 .410614	3.344727 .262891	2.729736 .222943	2.049805 .157825	1.244055
7	92.345703 1.330298	40.375000 1.018420	28.056641 .854834	11.588867 .663867	7.664795 .419067	5.913574 .355017	4.135010 .252301	2.269531
8	4446.750000 2.975830	887.375000 2.113525	442.453125 1.702161	86.500000 1.257727	41.990234 .745007	27.138672 .621387	15.227783 .432159	6.182617

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 700 \quad r_2 = 350$

m=10

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.505609 .014961	.355505 .008400	.297864 .005432	.178241 .002637	.132281 .000516	.106799 .000257	.076075 .000051	.036761
1	.838293 .054499	.604938 .038180	.515771 .029485	.330481 .019523	.258282 .008075	.217633 .005613	.167407 .002455	.098821
2	1.285498 .108366	.929413 .081642	.795331 .066754	.519952 .048745	.413605 .025449	.353766 .019611	.279736 .010971	.177234
3	1.950928 .178973	1.394629 .139545	1.189563 .117236	.776837 .089699	.620685 .052294	.533533 .042313	.426392 .026586	.278729
4	3.040039 .272839	2.122070 .216534	1.793652 .184589	1.151477 .144855	.915802 .089798	.786237 .074675	.628833 .050097	.415344
5	5.054199 .402649	3.390625 .322058	2.819580 .276471	1.747754 .219891	1.371619 .141162	1.169238 .119312	.928070 .083286	.609607
6	9.523193 .593835	5.983643 .474548	4.841797 .407928	2.822754 .325934	2.159668 .212842	1.814636 .181567	1.414819 .129779	.908417
7	23.078125 .905151	12.909668 .715710	9.948730 .612170	5.194092 .486969	3.792969 .318365	3.101074 .272412	2.335693 .196979	1.428613
8	103.125000 1.512292	45.107422 1.163440	31.353516 .980255	12.968018 .766156	8.586670 .490906	6.631348 .418549	4.645508 .302039	2.562012
9	4933.875000 3.328125	984.625000 2.370850	490.937500 1.914124	96.003906 1.420374	46.617188 .850012	30.138672 .712201	16.923340 .500787	6.886719

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 700 \quad r_2 = 350$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
m=11								
0	.444977 .013622	.315643 .007652	.265454 .004949	.160175 .002403	.119281 .000470	.096483 -.000235	.068901 .000047	.033408
1	.719373 .049187	.525415 .034507	.450287 .026670	.291913 .017677	.229321 .007318	.193805 .005089	.149677 .002227	.088844
2	1.069385 .096738	.785779 .073042	.677081 .059805	.449799 .043748	.360358 .022889	.309546 .017650	.246106 .009882	.157214
3	1.557825 .157428	1.138293 .123187	.980072 .103748	.654224 .079584	.527795 .046574	.456360 .037726	.367499 .023744	.243054
4	2.292460 .235486	1.649854 .187915	1.412744 .160693	.934906 .126636	.753674 .078951	.652301 .065762	.527338 .044240	.354071
5	3.499023 .338629	2.453125 .272931	2.078857 .235394	1.346289 .188342	1.077136 .121967	.929016 .103351	.748792 .072462	.503534
6	5.731201 .480835	3.855469 .388708	3.211426 .336432	2.002441 .271191	1.577844 .179462	1.349341 .153674	1.076709 .110583	.716107
7	10.678223 .689929	6.720703 .555557	5.443604 .480408	3.185791 .387549	2.444336 .258710	2.058105 .222760	1.610547 .162769	1.043201
8	25.656250 1.030261	14.363770 .819128	11.075684 .703595	5.795654 .563684	4.239502 .374487	3.471191 .322668	2.620850 .237103	1.612622
9	113.875000 1.693982	49.824219 1.308264	34.638672 1.105640	14.342773 .868536	9.505615 .563104	7.346924 .482574	5.154297 .352454	2.853760
10	5419.625000 3.679443	1081.500000 2.627686	539.312500 2.125732	105.484375 1.582849	51.230469 .955109	33.130859 .803198	18.614014 .569788	7.589111

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 700 \quad r_2 = 350$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
m= 12								
0	.397314 .012504	.283687 .007030	.239484 .004547	.145496 .002209	.108661 .000432	.088032 -.000215	.062996 .000043	.030627
1	.629443 .044843	.464233 .031497	.399512 .024362	.261487 .016159	.206281 .006696	.174762 .004656	.135394 .002038	.080738
2	.913483 .087398	.679889 .066120	.589044 .054198	.396368 .039702	.319342 .020814	.275220 .016056	.219800 .008995	.141345
3	1.290808 .140613	.959198 .110370	.831854 .093088	.564752 .071570	.459076 .042016	.398749 .034061	.323035 .021467	.215619
4	1.823975 .207318	1.342505 .166125	1.160693 .142413	.785779 .112567	.639880 .070509	.557245 .058806	.454163 .039645	.308752
5	2.629639 .292513	1.901611 .237134	1.632947 .205212	1.030991 .164935	.885107 .107532	.7 9818 .091287	.627460 .064213	.429260
6	3.954102 .404663	2.781250 .329840	2.361328 .286877	1.539514 .232739	1.237219 .155505	1.070789 .133533	.868048 .096559	.591516
7	6.404053 .559076	4.317383 .455658	3.601074 .396826	2.255615 .323126	1.782910 .218762	1.528406 .189136	1.224646 .139209	.822363
8	11.828125 .785992	7.454346 .636768	6.042969 .553094	3.547363 .449585	2.727539 .305243	2.300537 .264722	1.805542 .196704	1.177600
9	28.222656 1.155200	15.812500 .922546	12.198486 .795117	6.395020 .640582	4.684326 .431030	3.839344 .373450	2.905029 .277936	1.796216
10	124.593750 1.875244	54.527344 1.452905	37.916016 1.230872	15.713379 .970947	10.421875 .635547	8.060303 .546399	5.661621 .403381	3.144531
11	5904.000000 4.030029	1178.250000 2.884033	587.500000 2.336670	114.937500 1.745007	55.832031 1.060229	36.113281 .894293	20.300781 .639026	8.289307

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 800 \quad r_2 = 400$

K/G	.001000	.005000	.010000	.050000	.100000	.150000	.250000	.500000
	.750000	.850000	.900000	.950000	.990000	.995000	.999000	
				m=1				
0	499.500000	99.500000	49.500000	9.500000	4.500000	2.833252	1.500024	.500000
	.166675	.038234	.055556	.026315	.005050	.002513	.000500	
				m=2				
0	15.321777	6.575928	4.503662	1.737866	1.082446	.792065	.500787	.207501
	.077524	.042424	.027112	.013023	.002525	.001258	.000251	
1	998.000000	199.000000	99.126953	19.223633	9.232666	5.899902	3.228760	1.206274
	.499847	.316016	.231244	.144031	.055579	.038066	.016338	
				m=3				
0	4.507324	2.428711	1.824524	.859473	.578943	.442474	.294751	.130511
	.050555	.027967	.017959	.008665	.001686	.000840	-.000168	
1	26.703125	11.571777	7.965352	3.193848	2.053955	1.546228	1.032703	.500635
	.242688	.162097	.122028	.078474	.031386	.021657	.009386	
2	1495.250000	298.250000	148.625000	28.923828	13.955322	8.961426	4.957275	1.920349
	.850256	.566431	.432892	.291608	.137378	.103198	.055605	
				m=4				
0	2.318359	1.334924	1.085071	.559900	.391089	.305060	.208325	.095228
	.037551	.020883	.013443	.006500	.001267	.000632	-.000126	
1	7.310547	4.011719	3.051758	1.513330	1.062183	.840552	.597253	.315039
	.161212	.109790	.083530	.054358	.022039	.015251	.006634	
2	37.826172	16.452881	11.386475	4.616211	3.004150	2.285400	1.556665	.796490
	.420166	.298535	.236249	.165820	.082226	.062550	.034324	
3	1991.250000	397.265625	198.015625	38.599609	18.666260	12.015625	6.682617	2.635010
	1.204565	.822577	.641620	.448181	.231274	.181201	.108234	

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 800$ $r_2 = 400$

K/G	.001000	.005000	.010000	.050000	.100000	.150000	.250000	.500000
	.750000	.850000	.900000	.950000	.990000	.995000	.999000	
				m=5				
0	1.497034	.947473	.760083	.412994	.294568	.232465	.161060	.075022
	.029897	.016681	.010753	.005207	.001017	.000506	.000101	
1	3.603516	2.205011	1.755502	.962524	.704236	.570825	.417999	.229993
	.120959	.083240	.063671	.041695	.017025	.011802	.005144	
2	10.005659	5.532959	4.231201	2.142334	1.528162	1.225745	.892340	.501245
	.281567	.204963	.164417	.117267	.059382	.045407	.025110	
3	48.847656	21.259063	14.756348	6.025635	3.946045	3.018311	2.076904	1.092456
	.601062	.440152	.356757	.261029	.143115	.113910	.069725	
4	2486.125000	496.015625	247.265625	48.251953	23.365234	15.062500	8.404053	3.349121
	1.559961	1.080737	.852972	.608356	.330542	.265179	.167834	
				m=6				
	1.087695	.714093	.581506	.326636	.236127	.187793	.131335	.061932
	.024854	.013895	.008966	.004346	.000849	.000423	.000084	
1	2.263164	1.473840	1.203650	.699207	.524103	.430847	.321204	.181232
	.096937	.067123	.051520	.033870	.013893	.009638	.004206	
2	4.622998	2.934131	2.391357	1.345251	1.003101	.825690	.621265	.365912
	.212415	.156665	.126575	.091093	.046655	.035781	.019870	
3	12.659912	7.030762	5.391846	2.761719	1.987488	1.605786	1.184314	.697488
	.404907	.304663	.250775	.187000	.105182	.084297	.052157	
4	59.808594	26.099609	18.107910	7.427490	4.882813	3.747559	2.594971	1.388098
	.783215	.533856	.479980	.359778	.208997	.170673	.111163	
5	2979.625000	594.562500	296.406250	57.880859	28.052734	18.102051	10.121338	4.061768
	1.915405	1.339514	1.065356	.770184	.432587	.352271	.231274	

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 800 \quad r_2 = 400$

K·G	.001000	.005000	.010000	.050000	.100000	.150000	.250000	.500000
	.750000	.850000	.900000	.950000	.990000	.995000	.999000	
				m=7				
0	.847998	.570917	.469788	.270032	.197040	.157550	.110919	.052771
	.021283	.011917	.007696	.003733	.000729	.000363	.000073	
1	1.612663	1.092700	.907288	.547113	.416656	.345709	.260785	.149646
	.080955	.056300	.043309	.028547	.011745	.008154	.003561	
2	2.982422	1.957834	1.620007	.968842	.741498	.619800	.475677	.288342
	.170825	.127032	.103107	.074614	.038497	.029580	.016471	
3	6.016602	3.745850	3.013672	1.720166	1.296301	1.076099	.821722	.501855
	.306525	.234052	.194293	.146411	.083576	.067238	.041863	
4	15.290527	8.515137	6.542480	3.375488	2.442871	1.982910	1.474390	.873480
	.529504	.406372	.339667	.259961	.155475	.127979	.084450	
5	70.726563	30.888672	21.445313	8.823242	5.815674	4.473877	3.111328	1.683179
	.965790	.728528	.604480	.460358	.277600	.230511	.156177	
6	3472.000000	692.812500	345.406250	67.484375	32.730469	21.134766	11.834473	4.772949
	2.270508	1.598474	1.278174	.932770	.536127	.441162	.297009	

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 800 \quad r_2 = 400$

m=7

K·G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.847998 .021283	.570917 .011917	.469788 .007696	.270032 .003733	.197040 .000729	.157550 .000363	.110919 .000073	.052771
1	1.612683 .080955	1.092700 .056300	.907288 .043309	.547113 .028547	.416656 .011745	.345709 .008154	.260785 .003561	.149646
2	2.982422 .170825	1.957834 .127032	1.620007 .103107	.968842 .074614	.741498 .038497	.619800 .029580	.475677 .016471	.288342
3	6.016602 .306525	3.745850 .234052	3.013672 .194293	1.720166 .146411	1.296301 .083576	1.076099 .067238	.821722 .041863	.501855
4	15.290527 .529504	8.515137 .406372	6.542480 .339667	3.375488 .259961	2.442871 .155475	1.982910 .127979	1.474390 .084450	.873480
5	70.726563 .965790	30.888672 .728528	21.445313 .604480	8.823242 .460358	5.815674 .277600	4.473877 .230511	3.111328 .156177	1.683179
6	3472.000000 2.270508	692.812500 1.598474	345.406250 1.278174	67.484375 .932770	32.730469 .536127	21.134766 .441162	11.834473 .297009	4.772949

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 800 \quad r_2 = 400$

$m = 8$

K G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.692462	.474823	.393713	.230145	.169116	.135791	.096059	.045995
	.018619	.010437	.006744	.003272	.000640	.000319	.000063	
1	1.239478	.863165	.724988	.448792	.345618	.288647	.219586	.127521
	.069550	.048516	.037383	.024686	.010181	.007070	.003090	
2	2.101318	1.444971	1.210486	.753400	.586633	.495392	.385229	.238110
	.143024	.106952	.087082	.063267	.032809	.025239	.014083	
3	3.682861	2.448730	2.025391	1.231787	.953949	.804846	.627673	.395483
	.247083	.190479	.158984	.120624	.069500	.056059	.035045	
4	7.196289	4.498535	3.628418	2.090820	1.586328	1.324011	1.020557	.637653
	.401764	.313330	.264355	.204724	.124500	.102985	.068474	
5	17.905762	9.990723	7.686035	3.985840	2.895752	2.357910	1.763074	1.059131
	.654620	.509058	.429871	.334723	.208325	.174518	.120013	
6	81.605469	35.662109	24.771484	10.214355	6.745605	5.197754	3.625732	1.977600
	1.148486	.873633	.729657	.561914	.347845	.292157	.203473	
7	3963.125000	790.812500	394.296875	77.064453	37.394531	24.158203	13.543457	5.482422
	2.625244	1.857239	1.491052	1.095752	.640521	.531091	.364172	

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 800 \quad r_2 = 400$

K/G	.001000	.005000	.010000	.050000	.100000	.150000	.250000	.500000
	.750000	.850000	.900000	.950000	.990000	.995000	.999000	
					m=9			
0	.584100	.406158	.338721	.200574	.148181	.119342	.084751	.040784
	.016559	.009290	.006004	.002914	.000570	.000284	.000057	
1	1.001066	.711285	.602496	.380225	.295239	.247815	.189685	.111163
	.061001	.042653	.032908	.021764	.008989	.006246	.002731	
2	1.601025	1.133105	.960876	.615070	.484802	.412384	.323706	.202893
	.123126	.092439	.075441	.054968	.028611	.022031	.012310	
3	2.574707	1.786389	1.504419	.953796	.752179	.641528	.507440	.326575
	.207257	.160815	.134723	.102710	.059573	.048138	.030177	
4	4.372803	2.922363	2.424805	1.490991	1.163623	.987701	.778241	.502496
	.324438	.255627	.216992	.169330	.104144	.086399	.057742	
5	8.366455	5.245117	4.238281	2.458496	1.874207	1.570215	1.218298	.773145
	.497589	.393561	.335669	.264722	.167834	.141345	.098066	
6	20.509766	11.459229	8.824463	4.593262	3.346680	2.731445	2.050781	1.244360
	.779980	.612292	.520807	.410492	.262769	.222821	.157703	
7	92.451172	40.421875	28.087891	11.601318	7.672607	5.919434	4.138916	2.271484
	1.331091	1.018909	.855139	.664020	.419067	.354987	.252209	
8	4453.000000	888.625000	443.078125	86.623047	42.048828	27.175781	15.248291	6.190430
	2.979004	2.115723	1.703748	1.258765	.745435	.621661	.432281	

TABLE I
PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$
$r_1 = 800$ $r_2 = 400$

m=10

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.504602 .014915	.354742 .008375	.297192 .005415	.177814 .002629	.131915 .000514	.106494 .000256	.075857 .000051	.036655
1	.837134 .054358	.603961 .038077	.514917 .029405	.329840 .019470	.257764 .008053	.217145 .005596	.167041 .002448	.098573
2	1.284277 .108173	.928406 .081455	.794385 .066597	.519220 .048627	.412964 .025384	.353186 .019561	.279218 .010944	.176868
3	1.950012 .178638	1.393774 .139270	1.188708 .117023	.776135 .089516	.620013 .052184	.532922 .042222	.425842 .026529	.278302
4	3.039795 .272473	2.121826 .216260	1.793225 .184344	1.150928 .144641	.915283 .089641	.785718 .074541	.628345 .050002	.414917
5	5.055908 .402344	3.391357 .321753	2.820068 .276196	1.747754 .219647	1.371436 .140979	1.169055 .119159	.927795 .083160	.609271
6	9.529785 .593652	5.987305 .474365	4.844482 .407715	2.823975 .325720	2.160400 .212659	1.815125 .181384	1.415063 .129657	.908386
7	23.101563 .905334	12.922363 .715771	9.958252 .612140	5.198486 .486908	3.795898 .318243	3.103516 .272290	2.337402 .196826	1.429224
8	103.265625 1.513452	45.156016 1.164111	31.392578 .980743	12.984131 .766431	8.596924 .490967	6.638916 .418549	4.650635 .301978	2.564453
9	4941.625000 3.332275	986.187500 2.373779	491.718750 1.916199	96.156250 1.421777	46.689453 .850623	30.185547 .712628	16.948975 .500970	6.896729

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 800 \quad r_2 = 400$

m=11

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.443970 .013572	.314886 .007625	.264783 .004931	.159717 .002396	.118915 .000468	.096185 -.000234	.068684 .000047	.033298
1	.718152 .049043	.524408 .034404	.449371 .026590	.291272 .017620	.228772 .007295	.193317 .005071	.149280 .002219	.086592
2	1.068103 .096494	.784711 .072851	.676105 .059645	.449036 .043626	.359686 .022825	.308936 .017601	.245587 .009853	.156848
3	1.556726 .157092	1.137317 .122913	.979126 .103503	.653430 .079397	.527063 .046460	.455688 .037631	.366919 .023683	.242596
4	2.291992 .235120	1.649121 .187579	1.412012 .160419	.934235 .126392	.753003 .078783	.651691 .065621	.526758 .044141	.353583
5	3.499512 .338232	2.453125 .272595	2.078613 .235089	1.345923 .188068	1.076709 .121753	.928558 .103168	.748334 .072325	.503107
6	5.734131 .480499	3.856934 .388403	3.212646 .336127	2.002686 .270947	1.577966 .179248	1.349260 .153491	1.076587 .110431	.715833
7	10.687500 .689838	6.725830 .555444	5.447754 .480225	3.187744 .387366	2.445557 .258496	2.059082 .222546	1.611096 .162585	1.043323
8	25.685547 1.030627	14.380127 .819342	11.088135 .703687	5.801514 .563684	4.243408 .374365	3.474365 .322546	2.623047 .236981	1.613599
9	114.046875 1.695508	49.898438 1.309241	34.689453 1.106372	14.363037 .868994	9.518799 .563226	7.356689 .482635	5.160889 .352454	2.856934
10	5429.125000 3.684814	1083.500000 2.631348	540.250000 2.128418	105.671875 1.584619	51.320313 .955933	33.187500 .803809	18.645508 .570093	7.601318

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 800 \quad r_2 = 400$

m=12

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.396307 .012458	.283093 .007004	.238782 .004530	.145038 .002201	.108295 .000431	.087730 -.000215	.062775 .000043	.030513
1	.628223 .044694	.463226 .031390	.398596 .024278	.260815 .016101	.205701 .006672	.174243 .004640	.134998 .002030	.080482
2	.912170 .087147	.678760 .065922	.588007 .054034	.395544 .039577	.318640 .020746	.274579 .016006	.219250 .008966	.140979
3	1.289526 .140277	.958069 .110095	.830817 .092847	.563898 .071379	.458282 .041898	.398016 .033961	.322424 .021402	.215131
4	1.822998 .206921	1.341523 .165790	1.159839 .142108	.784955 .112323	.639117 .070337	.556512 .058661	.453491 .039546	.308234
5	2.629395 .292065	1.901123 .236737	1.632397 .204877	1.090381 .164630	.884497 .107318	.769238 .091096	.626849 .064072	.428741
6	3.955322 .404266	2.781738 .329443	2.361572 .286511	1.539331 .232404	1.236975 .155231	1.070422 .133289	.867651 .096384	.591089
7	6.408447 .558801	4.320068 .455383	3.603027 .396521	2.256348 .322852	1.783337 .218488	1.528650 .188892	1.224707 .139026	.822180
8	11.840332 .785992	7.461426 .636676	6.048584 .552972	3.550293 .449402	2.729492 .305029	2.302002 .264508	1.806458 .196521	1.177905
9	28.261719 1.155811	15.833252 .922913	12.214355 .795331	6.402588 .640674	4.689697 .430969	3.843994 .373358	2.907959 .277814	1.797620
10	124.812500 1.877258	54.617188 1.454248	37.978516 1.231848	15.738281 .971619	10.437988 .635791	8.072510 .547052	5.669922 .403381	3.148682
1	5915.375000 4.036621	1180.500000 2.888428	588.687500 2.340088	115.156250 1.747266	55.939453 1.061267	36.181641 .895087	20.337891 .639453	8.304199

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 900 \quad r_2 = 450$

K G								
	.001000	.005000	.010000	.050000	.100000	.150000	.250000	.500000
	.750000	.850000	.900000	.950000	.990000	.995000	.999000	
				m=1				
0	499.500000	99.500000	49.500000	9.500000	4.500000	2.833252	1.500024	.500000
	.166675	.038234	.055556	.026315	.005050	.002513	.000500	
				m=2				
0	15.320801	6.575439	4.503174	1.737683	1.082324	.791943	.500696	.207471
	.077505	.042416	.027105	.013019	.002524	.001258	.000251	
1	998.125000	199.031250	99.140625	19.226318	9.233687	5.900635	3.229248	1.206335
	.499847	.316016	.231244	.144031	.055579	.038062	.016334	
				m=3				
0	4.506592	2.427979	1.824097	.859198	.578760	.442291	.294629	.130450
	.050528	.027952	.017948	.008661	.001685	.000840	-.000167	
1	26.705078	11.572210	7.985596	3.193848	2.053711	1.546228	1.032642	.500543
	.242627	.162036	.121997	.078451	.031375	.021650	.009382	
2	1495.625000	298.343750	148.671875	28.931641	13.958984	8.963623	4.958496	1.920715
	.850378	.566461	.432922	.291608	.137347	.103198	.055598	
				m=4				
0	2.317627	1.384436	1.084644	.559625	.390875	.304877	.208173	.095159
	.037520	.020868	.013431	.006496	.001266	.000631	-.000126	
1	7.310059	4.011475	3.051514	1.513086	1.061938	.840369	.597070	.314948
	.161121	.109760	.083488	.054328	.022023	.015243	.006630	
2	37.833984	16.436055	11.388672	4.616943	3.004395	2.285645	1.556726	.796460
	.420105	.298474	.236188	.165759	.082199	.062531	.034312	
3	1992.125000	397.421875	198.093750	38.615234	18.673828	12.020264	6.685059	2.635986
	1.204871	.822729	.641711	.448212	.231244	.181171	.108234	

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 900 \quad r_2 = 450$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m=5				
0	1.496301	.946960	.759625	.412689	.294324	.232281	.160907	.074946
	.029863	.016662	.010742	.005201	.001015	.000506	.000101	
1	3.602783	2.205322	1.755078	.962189	.703931	.570581	.417786	.229840
	.120866	.033175	.063622	.041661	.017013	.011791	.005138	
2	10.006836	5.533447	4.231445	2.142334	1.528101	1.225623	.892218	.501123
	.281445	.204877	.164325	.117206	.059344	.045380	.025094	
3	48.863281	21.296875	14.761230	6.027344	3.947021	3.019043	2.077393	1.092578
	.601031	.440094	.356726	.260968	.143085	.113879	.069699	
4	2487.500000	496.296875	247.406250	48.279297	23.378906	15.070313	8.408203	3.350586
	1.560510	1.081042	.853156	.608478	.330573	.265179	.167804	
				m=6				
0	1.086963	.713544	.581049	.326300	.235883	.187579	.131183	.061856
	.024820	.013877	.008955	.004340	.000847	.000423	.000084	
1	2.262451	1.473291	1.203101	.698810	.523767	.430573	.320959	.181049
	.096841	.067059	.051463	.033832	.013877	.009628	.004201	
2	4.822754	2.983887	2.391113	1.345007	1.002856	.825415	.621021	.365729
	.212262	.156543	.126483	.091016	.046613	.035747	.019851	
3	12.662842	7.032227	5.392822	2.761963	1.987610	1.605847	1.184253	.687396
	.404785	.304541	.250684	.186908	.105121	.084247	.052123	
4	59.837891	26.111328	18.115967	7.430420	4.884521	3.748779	2.595947	1.388403
	.783276	.533856	.479950	.359747	.208936	.170642	.111102	
5	2981.750000	594.937500	296.609375	57.919922	28.072266	18.114014	10.127930	4.063965
	1.916321	1.340063	1.065723	.770398	.432648	.352301	.231274	

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 900 \quad r_2 = 450$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
m=7								
0	.847266 .021249	.570367 .011898	.469299 .007683	.269696 .003726	.196796 .000728	.157367 .000363	.110767 .000073	.052691
1	1.611890 .080852	1.072090 .056223	.906677 .043248	.546686 .028505	.416290 .011730	.345404 .008142	.260510 .003556	.149463
2	2.981934 .170673	1.957346 .126910	1.619519 .102985	.968414 .074534	.741132 .038451	.619464 .029546	.475372 .016452	.288129
3	6.017334 .306342	3.746094 .233899	3.013672 .194171	1.720044 .146320	1.296118 .083507	1.075916 .067181	.821509 .041821	.501672
4	15.296387 .529413	8.518066 .416250	6.544678 .339575	3.376465 .259869	2.443359 .155383	1.983215 .127917	1.474512 .084396	.873450
5	70.769531 .966003	30.908203 .728619	21.458984 .604541	8.828125 .460327	5.818848 .277570	4.476074 .230450	3.112549 .156116	1.683728
6	3474.875000 2.271973	693.375000 1.599329	345.703125 1.278784	67.539063 .933136	32.755859 .536249	21.150391 .441223	11.843750 .297040	4.776123

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 900$ $r_2 = 450$

$m = 8$

K/G	.001000	.005000	.010000	.050000	.100000	.150000	.250000	.500000
	.750000	.850000	.900000	.950000	.990000	.995000	.999000	
0	.691699	.474243	.393195	.229810	.168872	.135547	.095899	.045914
	.018585	.010417	.006731	.003266	.000638	.000318	.000063	
1	1.238623	.862463	.724347	.448334	.345221	.288312	.219281	.127338
	.069443	.048440	.037322	.024648	.010162	.007059	.003085	
2	2.100566	1.444360	1.209875	.752911	.586206	.494995	.384894	.237836
	.142871	.106830	.086971	.063183	.032764	.025205	.014064	
3	3.682617	2.448486	2.025146	1.231421	.953613	.804510	.627368	.395239
	.246899	.190295	.158832	.120502	.069424	.055995	.035003	
4	7.197998	4.499512	3.628906	2.090820	1.586267	1.323950	1.020435	.637469
	.401561	.313147	.264203	.204602	.124408	.102893	.068413	
5	17.915039	9.995605	7.689697	3.987305	2.696729	2.358643	1.763501	1.059253
	.654590	.508966	.429779	.334601	.208234	.174426	.119952	
6	81.666016	35.689453	24.789063	10.221436	6.750000	5.200928	3.627930	1.978516
	1.148853	.873846	.729779	.561945	.347815	.292096	.203412	
7	3966.875000	791.625000	394.687500	77.138672	37.429688	24.181641	13.555908	5.487061
	2.627197	1.858459	1.491907	1.096301	.640735	.531244	.364233	

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 900 \quad r_2 = 450$

m=9

K/G	.001000	.005000	.010000	.050000	.100000	.150000	.250000	.500000
	.750000	.850000	.900000	.950000	.990000	.995000	.999000	
0	.583337	.405548	.338202	.200238	.147937	.119128	.084583	.040700
	.016521	.009271	.005991	.002909	.000568	.000283	.000056	
1	1.000171	.710553	.601825	.379767	.294843	.247449	.189410	.110980
	.060894	.042573	.032844	.021722	.008972	.006235	.002725	
2	1.600171	1.132434	.960236	.614551	.484344	.411957	.323340	.202649
	.122943	.092298	.075323	.054881	.028562	.021997	.012290	
3	2.574219	1.735840	1.503931	.953339	.751752	.641132	.507043	.326270
	.207013	.160602	.134540	.102557	.059489	.048070	.030135	
4	4.373291	2.922607	2.424805	1.490808	1.163379	.987427	.777936	.502222
	.324194	.235444	.216809	.169177	.104022	.086300	.057673	
5	8.369629	5.246826	4.239502	2.458984	1.874451	1.570337	1.218298	.773022
	.497406	.393403	.335516	.264569	.167712	.141223	.097978	
6	20.521484	11.466553	8.829590	4.595703	3.348389	2.732666	2.051514	1.244666
	.780011	.612262	.520746	.410400	.262677	.222729	.157611	
7	92.533203	40.457031	28.111328	11.610840	7.678711	5.923828	4.141846	2.272705
	1.331641	1.019275	.855383	.664142	.419067	.354956	.252179	
8	4457.875000	889.625000	443.562500	86.716797	42.093750	27.205078	15.264404	6.196533
	2.981689	2.117432	1.704968	1.259558	.745770	.621875	.432373	

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 900 \quad r_2 = 450$

m=10

K/G	.001000	.005000	.010000	.050000	.100000	.150000	.250000	.500000
	.750000	.850000	.900000	.950000	.990000	.995000	.999000	
0	.503859	.354132	.296674	.177448	.131641	.106261	.075689	.036567
	.014877	.008354	.005401	.002622	.000513	.000256	.000051	
1	.836218	.603229	.514246	.329321	.257336	.216779	.166736	.098383
	.054244	.037997	.029340	.019428	.008034	.005584	.002442	
2	1.283362	.927612	.793683	.518640	.412476	.352728	.278851	.176593
	.107959	.081510	.066475	.048535	.025335	.019523	.010921	
3	1.949280	1.393042	1.188098	.775555	.619525	.532465	.425415	.277966
	.178394	.139087	.116840	.089378	.052096	.042149	.026479	
4	3.039795	2.121338	1.792859	1.150500	.914856	.785321	.627948	.414581
	.272198	.216016	.184131	.144458	.089519	.074434	.049928	
5	5.057129	3.392090	2.820557	1.747754	1.371375	1.168872	.927582	.609027
	.402100	.321509	.275983	.219464	.140826	.119006	.083065	
6	9.534668	5.990234	4.846680	2.824951	2.161133	1.815552	1.415247	.908356
	.593530	.474215	.407562	.325568	.212537	.181262	.129535	
7	23.119141	12.932129	9.965576	5.201904	3.798096	3.105225	2.338379	1.429712
	.905487	.715802	.612140	.486847	.318121	.272198	.196735	
8	103.375000	45.210938	31.423828	12.996582	8.604980	6.645020	4.654541	2.566406
	1.514307	1.164661	.981140	.766675	.490997	.418579	.301947	
9	4947.750000	987.375000	492.328125	96.273438	46.746094	30.220703	16.968994	6.904297
	3.335693	2.375977	1.917847	1.422815	.851080	.712964	.501123	

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 900 \quad r_2 = 450$

$m = 11$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.443207 .013538	.314276 .007606	.264233 .004918	.159381 .002389	.118640 .000467	.095956 -.000233	.068516 .000046	.033210
1	.717206 .048928	.523645 .034320	.448669 .026525	.290753 .017578	.228345 .007278	.192950 .005060	.148975 .002213	.088398
2	1.067126 .096304	.783887 .072702	.675311 .059519	.448425 .043534	.359167 .022775	.308447 .017562	.245190 .009830	.156573
3	1.555811 .156848	1.136523 .122729	.978394 .103320	.652789 .079252	.526514 .046368	.455170 .037559	.366461 .023633	.242261
4	2.291504 .234614	1.648572 .187335	1.411462 .160175	.933685 .126178	.752484 .078657	.651202 .065514	.526300 .044064	.353217
5	3.499756 .337927	2.453125 .272321	2.078613 .234814	1.345618 .187854	1.076404 .121600	.928223 .103046	.747968 .072222	.502771
6	5.736328 .480266	3.858154 .388159	3.213623 .335913	2.003174 .270734	1.578027 .179095	1.349260 .153339	1.076465 .110309	.715619
7	10.694580 .689746	6.729980 .555322	5.450928 .480072	3.189453 .387213	2.446533 .258344	2.059814 .222394	1.611584 .162463	1.043384
8	25.708964 1.030933	14.392822 .819464	11.097900 .703778	5.806152 .563684	4.246582 .374304	3.476807 .322455	2.624756 .236859	1.614392
9	114.187500 1.696667	49.955078 1.310034	34.730469 1.106921	14.378662 .869360	9.528809 .563348	7.364258 .482697	5.166016 .352423	2.859375
10	5436.625000 3.688965	1085.000000 2.634033	541.000000 2.130371	105.812500 1.586023	51.388672 .956543	33.232422 .804266	18.670166 .570306	7.610596

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 900 \quad r_2 = 450$

m= 12

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.395514 .012424	.282483 .006983	.238232 .004516	.144672 .002194	.108020 .000429	.087498 -.000214	.062603 .000043	.030429
1	.627246 .044576	.467433 .031306	.397864 .024213	.260297 .016056	.205273 .006655	.173877 .004627	.134662 .002025	.080284
2	.911133 .086948	.677875 .065770	.587213 .053908	.394934 .039481	.318091 .020696	.274091 .015964	.218823 .008943	.140674
3	1.288550 .140002	.937214 .109882	.829993 .092657	.563226 .071230	.457703 .041802	.397467 .033885	.321936 .021352	.214764
4	1.822266 .206616	1.340857 .165515	1.159106 .141864	.784344 .112109	.638538 .070204	.555963 .058547	.453003 .039466	.307837
5	2.629150 .291730	1.900757 .236462	1.631970 .204602	1.089954 .164386	.884009 .107135	.768750 .090948	.626392 .063961	.428314
6	3.956299 .403961	2.782227 .329169	2.361816 .286237	1.539209 .232159	1.236792 .155048	1.070178 .133136	.867346 .096246	.590784
7	6.411621 .558588	4.322021 .435139	3.604492 .396277	2.257080 .322638	1.783704 .218304	1.528833 .188708	1.224768 .138873	.822028
8	11.849854 .786023	7.467041 .636615	6.052979 .552850	3.552490 .449280	2.730957 .304877	2.302979 .264355	1.807190 .196368	1.178149
9	28.291016 1.156299	15.849609 .923187	12.226807 .795514	6.408691 .640735	4.693848 .430908	3.847168 .373267	2.910156 .277722	1.798657
10	124.968750 1.878784	54.687500 1.455286	38.027344 1.232642	15.757568 .972137	10.450439 .635974	8.081787 .547174	5.676270 .403412	3.151611
11	5924.375000 4.041748	1182.250000 2.891846	589.562500 2.342773	115.328125 1.748975	56.021484 1.062122	36.236328 .895728	20.367188 .639789	8.315674

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 1000 \quad r_2 = 500$

K, G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m=1				
0	499.500000 .166675	99.500000 .088234	49.500000 .055556	9.500000 .026315	4.500000 .005050	2.833252 .002513	1.500024 .000500	.500000
				m=2				
0	15.319624 .077490	6.574951 .042405	4.502930 .027097	1.737500 .013015	1.082202 .002524	.791852 .001257	.500635 .000251	.207440
1	998.250000 .499878	199.046875 .316046	99.150391 .231244	19.228271 .144031	9.234863 .055575	5.901367 .038062	3.229492 .016334	1.206458
				m=3				
0	4.505859 .050509	2.427734 .027940	1.823792 .017940	.859015 .008657	.578607 .001685	.442169 .000839	.294537 -.000167	.130389
1	26.705078 .242596	11.572998 .152006	7.985840 .121967	3.193846 .078432	2.053711 .031367	1.546167 .021646	1.032581 .009380	.500513
2	1496.000000 .850439	298.406250 .566522	148.703125 .432953	28.937500 .291608	13.961914 .137347	8.965332 .103198	4.959473 .055594	1.921021
				m=4				
0	2.316895 .037498	1.384009 .020852	1.084277 .013423	.559381 .006490	.390692 .001265	.304724 .000631	.208081 -.000126	.095102
1	7.310059 .161060	4.011230 .109698	3.051270 .083450	1.512903 .054305	1.061755 .022016	.840216 .015235	.596948 .006626	.314825
2	37.839644 .420044	16.458496 .298444	11.390137 .236157	4.617432 .165729	3.004639 .082176	2.285645 .062512	1.556787 .034301	.796429
3	1992.750000 1.205054	397.562500 .822852	198.156250 .641772	38.628906 .448242	18.679688 .231244	12.023926 .181171	6.687256 .108234	2.636475

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 1000 \quad r_2 = 500$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m=5				
0	1.495752 .029840	.946533 .016647	.759259 .010730	.412445 .005197	.294141 .001014	.232129 .000506	.160785 .000101	.074884
1	3.602295 .120807	2.204834 .083125	1.754712 .063580	.961914 .041634	.703717 .016998	.570367 .011783	.417633 .005134	.229718
2	10.007568 .281354	5.533691 .204816	4.231445 .164264	2.142334 .117175	1.527979 .059317	1.225500 .045358	.892096 .025079	.501001
3	48.876953 .601031	21.300781 .440063	14.764893 .356696	6.028809 .260938	3.947754 .143054	3.019531 .113849	2.077637 .069676	1.092639
4	2488.500000 1.560938	496.515625 1.081287	247.515625 .853339	48.298828 .608539	23.388672 .330573	15.076660 .265179	8.411621 .167804	3.351807
				m=6				
0	1.086414 .024793	.713086 .013862	.580652 .008945	.326056 .004335	.235669 .000846	.187427 .000422	.131061 .000084	.061795
1	2.261963 .096761	1.472803 .067002	1.202673 .051421	.698474 .033801	.523492 .013862	.430328 .009619	.320746 .004197	.180927
2	4.822754 .212170	2.983643 .156451	2.390869 .126392	1.344763 .090959	1.002612 .046582	.825201 .035724	.620837 .019836	.365546
3	12.665283 .404694	7.033203 .304449	5.393799 .250592	2.762207 .186847	1.987732 .105090	1.605847 .084205	1.184253 .052096	.687305
4	59.859375 .783307	26.121094 .583856	18.122559 .479950	7.432861 .359717	4.886230 .208905	3.750000 .170581	2.596436 .111072	1.388586
5	2983.375000 1.917053	595.250000 1.340552	296.765625 1.066089	57.951172 .770581	28.087891 .432678	18.123535 .352332	10.133057 .231274	4.065918

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 1000 \quad r_2 = 500$

m=7

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.846686 .021222	.569910 .011882	.468903 .007673	.269421 .003721	.196582 .000727	.157184 .000362	.110645 .000073	.052626
1	1.611279 .080768	1.091541 .036166	.906219 .043202	.546350 .028474	.415985 .011714	.345129 .008133	.260297 .003552	.149341
2	2.981445 .170551	1.966980 .126788	1.619153 .102924	.968109 .074473	.740857 .038417	.619189 .029516	.475128 .016437	.287946
3	6.017822 .306189	3.746338 .233777	3.013672 .194049	1.719922 .146228	1.295996 .083450	1.075732 .067131	.821356 .041791	.501489
4	15.301025 .529321	8.520508 .406158	6.546387 .339484	3.377197 .259778	2.443848 .155322	1.983459 .127856	1.474634 .084350	.873419
5	70.804688 .966156	30.921875 .728680	21.468750 .604572	8.832031 .460327	5.821289 .277509	4.477783 .230389	3.113770 .156085	1.684155
6	3477.125000 2.272949	693.812500 1.599988	345.921875 1.279272	67.583984 .933441	32.777344 .536340	21.164063 .441284	11.851074 .297040	4.779053

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 1000 \quad r_2 = 500$

$m = 8$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.691089 .018558	.473785 .010402	.392798 .006721	.229535 .003260	.168658 .000637	.135394 .000318	.095770 .000063	.045850
1	1.237952 .069359	.861914 .048379	.723859 .037276	.447968 .024614	.344916 .010150	.288037 .007049	.219067 .003080	.127185
2	2.099854 .142719	1.443872 .106703	1.209448 .086880	.752545 .063114	.585870 .032725	.494659 .025174	.384619 .014045	.237653
3	3.682617 .246716	2.448242 .190173	2.024902 .158710	1.231177 .120410	.953339 .069359	.804266 .055941	.627094 .034968	.395026
4	7.199463 .401428	4.500244 .313025	3.629395 .264081	2.091064 .204480	1.586267 .124316	1.323889 .102832	1.020313 .068360	.637317
5	17.922363 .654559	9.999268 .508905	7.692627 .429688	3.988770 .334540	2.897705 .208142	2.359131 .174365	1.763806 .119891	1.059314
6	81.714844 1.149158	35.708984 .873999	24.804688 .729901	10.227051 .561975	6.753662 .347784	5.203613 .292065	3.629639 .203351	1.979248
7	3970.000000 2.628662	792.187500 1.859436	394.984375 1.492639	77.197266 1.096729	37.458984 .640918	24.199219 .531335	13.565918 .364264	5.490723

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 1000 \quad r_2 = 500$

m=9

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.582727 .016494	.405090 .009254	.337775 .005981	.199969 .002903	.147723 .000568	.118945 .000283	.084453 .000056	.040635
1	.999451 .060803	.709973 .042512	.601306 .032794	.379370 .021688	.294537 .008959	.247174 .006223	.189166 .002722	.110828
2	1.599512 .122791	1.131824 .092188	.959686 .075232	.614124 .054808	.483948 .028524	.411591 .021966	.323065 .012271	.202435
3	2.573730 .206830	1.735474 .160449	1.503503 .134418	.952942 .102466	.751385 .059424	.640796 .048013	.506738 .030097	.326025
4	4.373535 .324011	2.922607 .255261	2.424805 .216656	1.490625 .169055	1.163135 .103931	.987183 .086223	.777722 .057616	.501978
5	8.372314 .497284	5.248291 .393256	4.240479 .335364	2.459229 .264447	1.874634 .167590	1.570459 .141152	1.218298 .097906	.772931
6	20.533203 .780042	11.472168 .612231	8.833984 .520685	4.597656 .410339	3.349609 .262585	2.733398 .222638	2.052002 .157550	1.244849
7	92.597656 1.332129	40.484375 1.019519	28.130859 .855597	11.618408 .664233	7.683594 .419067	5.927490 .354926	4.144287 .252118	2.273926
8	4461.750000 2.983643	690.375000 2.118652	443.953125 1.705945	86.792969 1.260229	42.128906 .746014	27.228516 .622058	15.277100 .432434	6.201172

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 1000 \quad r_2 = 500$

m=10

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.503229	.353644	.296246	.177173	.131427	.106097	.075556	.036498
	.014850	.008339	.005390	.002618	.000512	.000255	.000051	
1	.835455	.602618	.513696	.328925	.257001	.216504	.166492	.098230
	.054156	.037932	.029290	.019393	.008020	.005575	.002438	
2	1.282629	.927002	.793073	.518182	.412079	.352362	.278546	.176379
	.107837	.081195	.066376	.048463	.025296	.019493	.010902	
3	1.948669	1.392554	1.187549	.775128	.619098	.532068	.425079	.277692
	.178210	.138904	.116687	.089264	.052027	.042092	.026445	
4	3.039551	2.121094	1.792615	1.150195	.914551	.784985	.627643	.414307
	.271985	.215833	.183948	.144336	.089424	.074354	.049870	
5	5.058105	3.392578	2.820801	1.747754	1.371252	1.168750	.927399	.608813
	.401886	.321326	.275800	.219312	.140704	.118915	.082985	
6	9.538818	5.992432	4.848389	2.825684	2.161621	1.815857	1.415430	.908325
	.593408	.474060	.407440	.325415	.212415	.181140	.129443	
7	23.134766	12.939941	9.971436	5.204590	3.800049	3.106689	2.339355	1.430078
	.905609	.715833	.612140	.486786	.318060	.272107	.196674	
8	103.453125	45.248047	31.449219	13.006592	8.611328	6.649902	4.657715	2.567871
	1.514978	1.165149	.981476	.766858	.491028	.418579	.301917	
9	4952.625000	988.375000	492.812500	96.369141	46.792969	30.250000	16.985107	6.910400
	3.338379	2.377686	1.919128	1.423669	.851447	.713239	.501245	

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 1000 \quad r_2 = 500$

$m = 11$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.442566 .013597	.313788 .007589	.263806 .004907	.159076 .002383	.118427 .000466	.095773 -.000233	.068379 .000046	.033141
1	.716443 .048837	.523035 .034255	.448120 .026475	.290326 .017543	.228009 .007263	.192645 .005050	.148730 .002210	.088241
2	1.066333 .096147	.783215 .072580	.674701 .059420	.447937 .043458	.358740 .022733	.308081 .017528	.244855 .009813	.156329
3	1.555139 .156635	1.135913 .122546	.977783 .103168	.652301 .079134	.526056 .046300	.454742 .037498	.366095 .023595	.241956
4	2.291016 .234570	1.648145 .187122	1.411035 .159991	.933258 .126025	.752087 .078554	.650806 .065426	.525934 .044003	.352911
5	3.560000 .337683	2.453125 .272107	2.078369 .234631	1.345374 .187671	1.076160 .121478	.927948 .102924	.747693 .072138	.502496
6	5.738047 .480072	3.859131 .387976	3.214111 .335730	2.003418 .270551	1.578088 .178943	1.349280 .153186	1.076343 .110217	.715466
7	10.700195 .689685	6.733398 .555231	5.453369 .479950	3.190674 .387091	2.447266 .258221	2.060303 .222272	1.611890 .162372	1.043445
8	25.728516 1.031177	14.403320 .819586	11.105469 .703839	5.809814 .563654	4.249268 .374213	3.478760 .322394	2.625977 .236798	1.615002
9	114.281250 1.697644	50.001953 1.310706	34.761719 1.107410	14.391357 .869635	9.536865 .563440	7.370361 .482758	5.169922 .352423	2.861328
10	5442.625000 3.692383	1086.125000 2.636230	541.562500 2.132080	105.921875 1.587122	51.445313 .957062	33.267578 .804633	18.689697 .570490	7.618408

TABLE I

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 1000$ $r_2 = 500$

$m = 12$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.394873 .012393	.281995 .006965	.237805 .004506	.144397 .002189	.107776 .000428	.087314 -.000214	.062466 .000043	.030356
1	.626483 .044464	.461792 .031241	.397314 .024160	.259869 .016021	.204907 .006639	.173572 .004617	.134418 .002020	.080124
2	.910309 .086792	.677173 .065647	.586572 .053805	.394415 .039405	.317633 .020654	.273694 .015934	.218518 .008926	.140430
3	1.287756 .139769	.956512 .109698	.829352 .092508	.562677 .071108	.457214 .041730	.397040 .033828	.321539 .021314	.214490
4	1.821655 .206342	1.340247 .165302	1.158557 .141681	.783826 .111957	.638049 .070097	.555536 .058455	.452606 .039401	.307501
5	2.628906 .291486	1.900452 .236218	1.631665 .204388	1.089526 .164203	.883643 .107013	.768384 .0 0829	.626056 .063874	.428009
6	3.957031 .403717	2.782471 .328925	2.362061 .286023	1.539148 .231976	1.236609 .154895	1.069995 .132983	.867102 .096140	.590509
7	6.414307 .558435	4.323486 .454956	3.605713 .396094	2.257568 .322455	1.783948 .218152	1.529016 .188586	1.224768 .138751	.821906
8	11.857422 .726023	7.471436 .636554	6.056396 .552789	3.554199 .449158	2.731934 .304755	2.303955 .264233	1.807800 .196277	1.178394
9	28.316406 1.156665	15.862549 .973401	12.236572 .795667	6.413330 .640796	4.697266 .430878	3.8 9854 .373206	2.911865 .277631	1.799573
10	125.093750 1.880066	54.742188 1.456140	38.064453 1.233313	15.773193 .972534	10.460449 .636127	8.089600 .5 7266	5.681396 .403442	3.154297
11	5931.500000 4.045654	1183.750000 2.894531	590.250000 2.344727	115.468750 1.750378	56.089844 1.062793	36.279297 .896216	20.390625 .640033	8.324707

JOB DONE

APPENDIX

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 100 \quad r_2 = 10$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
m=1								
0	99.900391 .033332	19.899902 .017646	9.899902 .011112	1.900024 .005264	.900000 .001010	.566675 .000503	.300000 .000100	.100000
m=2								
0	3.200928 .016891	1.376501 .009271	.944061 .005934	.366522 .002853	.229352 .000554	.168414 .000276	.107074 .000055	.044843
1	197.875000 .101703	39.460938 .064667	19.658691 .047486	3.816650 .029714	1.835571 .011535	1.174670 .007911	.644733 .003403	.242871
m=3								
0	.987122 .011966	.535425 .006645	.403961 .004274	.193073 .002066	.131244 .000403	.100970 -.000201	.067898 .000040	.030543
1	5.532227 .053614	2.402832 .036090	1.661023 .027299	.669391 .017658	.433075 .007114	.327612 .004917	.220563 .002135	.108752
2	293.937500 .173663	58.638672 .116840	29.226563 .089893	5.695801 .061119	2.753174 .029214	1.771436 .022039	.983978 .011955	.385779
m=4								
0	.499329 .008529	.300146 .004754	.236005 .003063	.123126 .001483	.086559 .000289	.067803 -.000144	.046582 .000029	.021497
1	1.525903 .035361	.840186 .024194	.640552 .018455	.320105 .012046	.225842 .004903	.179401 .003396	.128223 .001479	.068413
2	7.677979 .088672	3.343750 .063382	2.316406 .050345	.942932 .035518	.615680 .017746	.469666 .013526	.321417 .007448	.166187
3	393.843750 .243604	78.580078 .167407	39.169922 .131152	7.641846 .092218	3.699219 .048123	2.383789 .037837	1.328772 .022744	.527551
m=5								
0	.364355 .008211	.234479 .004599	.189807 .002971	.105914 .001441	.076628 .000281	.061043 -.000141	.042836 .000028	.020345
1	.822089 .031177	.508966 .021646	.407776 .016639	.228497 .010963	.169391 .004510	.138599 .003131	.102924 .001367	.058043
2	2.153320 .067604	1.198657 .049825	.920593 .040265	.473511 .029008	.341437 .014900	.276074 .011436	.203595 .006361	.117358
3	9.950928 .133472	4.348145 .099168	3.019775 .081146	1.243933 .060162	.820410 .033687	.631213 .026983	.438812 .016693	.236249
4	480.500000 .317084	95.886719 .222943	47.808594 .177814	9.345947 .128833	4.536133 .072008	2.931152 .058302	1.643689 .037524	.665210

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 100 \quad r_2 = 10$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m=6				
0	.198627 .006168	.139758 .003471	.117358 .002246	.070978 .001092	.053031 -.000214	.043015 .000106	.030845 .000021	.015056
1	.330939 .071814	.235699 .015346	.200269 .011879	.128192 .007889	.100482 .003274	.084915 .002277	.065667 .000997	.039176
2	.526086 .042233	.368658 .031962	.312018 .026208	.200299 .019214	.158710 .010089	.135638 .007789	.107349 .004368	.068451
3	.867590 .068363	.585626 .053488	.488556 .045056	.305334 .034606	.240399 .020314	.205182 .016471	.162891 .010387	.106097
4	1.598657 .103625	1.010425 .082226	.820380 .070143	.483490 .055152	.372198 .034362	.314001 .028634	.246136 .019283	.159015
5	3.758301 .156512	2.111084 .124042	1.631360 .106036	.860144 .084057	.632281 .053904	.519525 .045590	.394293 .031894	.244550
6	16.218018 .252515	7.106689 .195911	4.946533 .165851	2.058838 .130298	1.370276 .083576	1.062671 .071039	.749890 .050582	.420380
7	747.250000 .524652	149.140625 .378088	74.380859 .307684	14.565430 .230969	7.085205 .140643	4.589355 .118335	2.587402 .083488	1.065906
				m=7				
0	.230420 .006651	.158832 .003738	.132251 .002418	.078520 .001175	.058241 -.000230	.047047 .000115	.033572 .000023	.016288
1	.408478 .023881	.282178 .016754	.236737 .012950	.147205 .008585	.114001 .003556	.095667 .002473	.073336 .001082	.043225
2	.709271 .047292	.475189 .035598	.394568 .029107	.242444 .021264	.188556 .011116	.159381 .008571	.124377 .004798	.077711
3	1.348059 .079207	.848639 .061402	.687274 .051455	.401154 .039271	.306616 .022855	.2 7184 .018489	.199603 .011619	.125781
4	3.235840 .126971	1.814209 .099134	1.400049 .083793	.734265 .065140	.537561 .039958	.440186 .033156	.332037 .022176	.202802
5	14.171143 .213300	6.205566 .163867	4.317139 .137683	1.792676 .106769	1.190662 .066441	.921722 .055735	.648212 .038478	.360083
6	660.000000 .456635	131.734375 .327124	65.691406 .264935	12.858398 .197223	6.251465 .117664	4.047119 .098104	2.278809 .067723	.934814

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 100 \quad r_2 = 10$

K/G	.001000 .750000	.005000 .950000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
m=8								
0	.279736 .007297	.137457 .004096	.154285 .002648	.089306 .001285	.065575 .000251	.052672 -.000125	.037334 .000025	.017955
1	.543797 .026783	.359747 .018714	.296368 .014434	.176837 .009546	.134601 .003943	.111835 .002741	.084648 .001199	.049031
2	1.090198 .054892	.682086 .040990	.550226 .033366	.316443 .024247	.239240 .012592	.198871 .009691	.151935 .005413	.092092
3	2.701416 .097265	1.510400 .074289	1.163379 .061734	.605548 .046635	.440704 .026773	.359106 .021581	.268536 .013484	.160358
4	12.683008 .173607	5.286621 .131580	3.675293 .109363	1.521143 .083294	1.007434 .049695	.777936 .040925	.544550 .027051	.298688
5	71.125000 .247427	113.984375 .275403	56.835938 .221631	11.118896 .163135	5.401855 .094717	3.494385 .078013	1.964233 .052313	.891245
m=9								
0	.176624 .005796	.126239 .003263	.106708 .002112	.065422 .001027	.049149 -.000201	.039985 .000100	.028775 .000020	.014114
1	.281567 .020269	.205090 .014286	.175952 .011074	.115039 .007362	.090974 .003059	.077269 .002129	.060135 .000932	.036193
2	.421967 .038623	.305243 .029340	.261853 .024110	.173389 .017719	.139240 .009334	.119922 .007211	.095869 .004048	.062001
3	.638049 .061127	.450989 .048123	.383673 .040621	.250958 .031383	.201520 .018528	.174030 .015045	.140247 .009510	.083393
4	1.020923 .089580	.692174 .071741	.573553 .061596	.366278 .048779	.290723 .030696	.249738 .025647	.200452 .017345	.134082
5	1.843079 .127979	1.168262 .103163	.590256 .080073	.563867 .071467	.436279 .046616	.369513 .039615	.291730 .027929	.191760
6	4.269531 .185748	2.401855 .149792	1.857849 .128314	.983368 .103137	.725079 .068283	.597253 .058550	.455322 .042290	.285596
7	15.225342 .291150	7.990234 .227582	5.563721 .193774	2.319824 .153735	1.546411 .100909	1.200964 .086616	.849646 .063118	.479645
8	32.937500 .591516	166.250000 .428223	82.910156 .349768	16.240723 .264294	7.903564 .163562	5.121582 .138599	2.890381 .097435	1.194690

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 100 \quad r_2 = 10$

K/G	.001000	.005000	.010000	.050000	.100000	.150000	.250000	.500000
	.750000	.850000	.900000	.950000	.990000	.995000	.999000	
				m=10				
0	.160632	.116229	.098711	.061169	.046143	.037623	.027154	.013362
	.005499	.003058	.002006	.000976	-.000191	.000095	.000019	
1	.247764	.183612	.158649	.105426	.083935	.071566	.055964	.033904
	.019065	.013462	.010440	.006948	.002891	.002012	.000882	
2	.350116	.263776	.228558	.154865	.125568	.108783	.087604	.057246
	.035918	.027360	.022516	.016578	.008755	.006767	.003802	
3	.508234	.371161	.320227	.216351	.176196	.153430	.124988	.084545
	.055953	.044244	.037494	.029012	.017200	.013984	.008854	
4	.746167	.530450	.452881	.299939	.242963	.211285	.172290	.117999
	.080170	.064694	.055724	.044347	.028096	.023519	.015956	
5	1.170215	.796704	.668170	.425690	.339789	.293225	.237195	.161639
	.110736	.090231	.078398	.063397	.041806	.035632	.025247	
6	2.082031	1.322546	1.077258	.642474	.498932	.423889	.336401	.223981
	.152118	.124042	.108051	.087986	.059325	.051127	.037242	
7	4.770752	2.686768	2.079834	1.104175	.816016	.673450	.515161	.325934
	.214612	.173358	.150439	.122211	.082908	.071829	.053145	
8	20.195313	8.856934	6.169189	2.575928	1.719250	1.336534	.947540	.537836
	.329199	.258801	.221387	.177020	.118274	.102313	.075926	
9	917.000000	183.031250	91.283203	17.885498	8.706787	5.644287	3.187744	1.321021
	.657184	.477509	.391211	.297162	.186267	.158740	.115466	

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 200 \quad r_2 = 20$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m=1				
0	99.900391 .033332	19.899902 .017646	9.899902 .011112	1.900024 .005264	.900000 .001010	.566675 .000503	.300000 .000100	.100000
				m=2				
0	3.132813 .016185	1.345862 .008869	.922363 .005672	.357001 .002725	.222882 .000529	.163379 .000263	.103595 .000053	.043145
1	198.859375 .100848	39.654297 .063950	19.753906 .046876	3.832764 .029264	1.842102 .011325	1.177966 .007763	.645557 .003335	.242139
				m=3				
0	.944458 .011016	.510614 .006107	.384436 .003924	.182422 .001895	.123462 -.000369	.094667 -.000184	.063366 .000037	.028283
1	5.440186 .051058	2.360107 .034236	1.630078 .025834	.654437 .016662	.422119 .006689	.318549 .004620	.213605 .002005	.104449
2	296.843750 .171985	59.212891 .115131	29.509766 .098283	5.746826 .059748	2.775146 .028352	1.783765 .021348	.988739 .011539	.385260
				m=4				
0	.534540 .009599	.323157 .005359	.254926 .003457	.134387 .001675	.095045 .000327	.074751 -.000163	.051646 .000032	.024045
1	1.586755 .038554	.876532 .026490	.669666 .020253	.337164 .013259	.239056 .005417	.190601 .003755	.137012 .001637	.073885
2	7.770752 .093271	3.388428 .067044	2.349365 .053450	.960419 .037887	.629199 .019062	.481262 .014560	.330908 .008039	.172870
3	388.125000 .245740	77.443359 .169371	38.607422 .133746	7.538574 .094648	3.653320 .049924	2.356934 .039386	1.316992 .023809	.526666
				m=5				
0	.332129 .007068	.212079 .003952	.170917 .002550	.094179 .001236	.067677 -.000241	.053675 .000120	.037440 .000024	.017620
1	.772443 .027635	.475616 .019107	.379858 .014652	.210645 .009626	.155170 .003946	.126392 .002738	.093229 .001195	.051962
2	2.080811 .061943	1.154529 .045384	.884802 .036548	.451599 .026208	.323920 .013370	.260876 .010246	.191180 .005684	.108844
3	9.879150 .126941	4.311035 .093656	2.991211 .076288	1.226721 .056201	.806189 .031158	.618457 .024884	.427765 .015319	.227643
4	489.906250 .315039	97.755859 .219861	48.736328 .174457	9.518555 .125415	4.614258 .069134	2.978027 .055731	1.665601 .035583	.668750

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 200 \quad r_2 = 20$

K/C	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
m=6								
0	.248883 .006105	.165210 .003422	.135303 .002210	.077223 .001072	.056292 -.000210	.045010 .000104	.031703 .000021	.015113
1	.499146 .023031	.327765 .016025	.268903 .012332	.158435 .008133	.119739 .003349	.098978 .002326	.074389 .001016	.042565
2	1.029651 .048650	.640765 .036117	.515253 .029302	.293225 .021199	.220227 .010940	.182208 .008405	.138202 .004682	.082634
3	2.623047 .089168	1.461633 .067627	1.123462 .055949	.580133 .042008	.419922 .023893	.340765 .019207	.253094 .011947	.149097
4	12.052246 .165363	5.266113 .124316	3.657471 .102802	1.506860 .077696	.994263 .045777	.765424 .037551	.532922 .024652	.288678
5	265.062500 .386053	116.750000 .272168	58.208984 .217755	11.376709 .158832	5.520508 .090753	3.566406 .074347	1.999207 .049355	.808661
m=7								
0	.200269 .005424	.136554 .003044	.113085 .001967	.066151 .000955	.048703 -.000187	.039161 .000093	.027776 .000019	.013359
1	.366370 .019973	.250836 .013958	.209424 .010765	.128375 .007118	.098661 .002940	.082363 .002043	.062672 .000893	.036490
2	.654681 .040673	.435486 .030448	.360144 .024812	.218488 .018051	.168658 .009382	.141833 .007223	.109821 .004034	.067662
3	1.279456 .070265	.801184 .054095	.646777 .045136	.373511 .034251	.283582 .019760	.236676 .015949	.182269 .009979	.113177
4	3.156434 .116595	1.763806 .090292	1.358252 .075922	.706647 .058600	.514429 .035533	.419434 .029378	.314185 .019531	.189105
5	14.200684 .203656	6.210205 .155078	4.315918 .129504	1.783887 .099561	1.180286 .061055	.910797 .050374	.636951 .034892	.349188
6	675.250000 .456512	135.546875 .324194	67.587891 .260876	13.217041 .192279	6.417725 .112659	4.149170 .093343	2.329590 .063683	.947327

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 200 \quad r_2 = 20$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
m=8								
0	.168751 .004916	.117389 .002762	.098016 .001786	.058379 .000867	.043298 -.000170	.034957 .000084	.024919 .000017	.012062
1	.290204 .017791	.204602 .012470	.172931 .009636	.109027 .006384	.084770 .002642	.071257 .001837	.054698 .000804	.032245
2	.474792 .035354	.329840 .026613	.277844 .021756	.175830 .015888	.138202 .008299	.117480 .006395	.092233 .003579	.057986
3	.805029 .058878	.539545 .045758	.448303 .038390	.276624 .029329	.216107 .017074	.183490 .013813	.144458 .008678	.092661
4	1.524561 .092096	.958527 .072493	.775769 .061531	.452301 .048055	.345801 .029622	.290234 .024602	.225720 .016475	.143542
5	3.682861 .144000	2.062012 .113116	1.589929 .096159	.831519 .075594	.607745 .047826	.497162 .040276	.374579 .027963	.228772
6	16.326172 .241742	7.144287 .185748	4.967529 .156238	2.057861 .121600	1.364294 .076708	1.054614 .064846	.739941 .045712	.409180
7	772.500000 .526392	154.171875 .375830	76.876953 .303778	15.039307 .225629	7.306396 .134692	4.726074 .112537	2.656738 .078341	1.084644
m=9								
0	.146930 .004523	.103748 .002543	.087162 .001645	.052630 .000799	.039249 -.000156	.031791 .000078	.022748 .000015	.011066
1	.241650 .016162	.174060 .011352	.148486 .008781	.095552 .005825	.074957 .002416	.063332 .001679	.048928 .000735	.029111
2	.372595 .031547	.266858 .023843	.227734 .019535	.148486 .014305	.118243 .007499	.101276 .005785	.080307 .003241	.051222
3	.579065 .051257	.405792 .040097	.343634 .033763	.221539 .025914	.176440 .015186	.151508 .012306	.121082 .007751	.079390
4	.951996 .077299	.641315 .061482	.534509 .052500	.333502 .041314	.262616 .025739	.224347 .021440	.178546 .014431	.117511
5	1.765881 .113971	1.113452 .091077	.902802 .078207	.529932 .062268	.407135 .040112	.343054 .033954	.268597 .023771	.173663
6	4.203125 .171344	2.356689 .135974	1.818909 .116504	.954895 .092798	.699969 .060513	.573969 .051631	.434326 .036964	.268109
7	16.429688 .279584	8.068604 .216321	5.612549 .182910	2.329102 .143665	1.546411 .092573	1.197009 .078981	.841864 .056906	.468628
8	864.937500 .595697	172.609375 .427063	86.078125 .346350	16.844238 .258801	8.186523 .156757	5.297607 .131324	2.980957 .093198	1.220740

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 200$ $r_2 = 20$

$m = 10$

K/C	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.130969 .004209	.093561 .002369	.078989 .001532	.048211 .000745	.036113 -.000146	.029321 .000073	.021043 -.000015	.010280
1	.208325 .014892	.152576 .010482	.131061 .008114	.085682 .005388	.067665 .002237	.057395 .001556	.044568 .000681	.026700
2	.307898 .028692	.225598 .021749	.194385 .017852	.129596 .013099	.104205 .006885	.089763 .005316	.071703 .002981	.046231
3	.451447 .045792	.326514 .035991	.280225 .030391	.186420 .023404	.150500 .013778	.130298 .011180	.105243 .007055	.070116
4	.680713 .067372	.479858 .053973	.407776 .046281	.266187 .036613	.213818 .022981	.184363 .019184	.149402 .012954	.100665
5	1.096484 .095785	.741315 .077402	.619250 .066895	.389471 .053702	.308386 .035003	.264630 .029729	.212170 .020932	.142169
6	2.004150 .135791	1.266333 .109729	1.028186 .095010	.606555 .076708	.467682 .050997	.395239 .043752	.311011 .031615	.203564
7	4.717773 .198535	2.647349 .158740	2.045166 .136829	1.076892 .110095	.791211 .073443	.649982 .063279	.493469 .046349	.307104
8	20.511719 .317145	8.983887 .246686	6.250977 .209485	2.597656 .165668	1.726758 .108539	1.337927 .093279	.942810 .068348	.527521
9	956.437500 .664325	190.890625 .477875	95.189453 .388617	16.632080 .291760	9.058105 .178760	5.863770 .151111	3.301758 .108173	1.395505

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 300$ $r_2 = 30$

K/C	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
m = 1								
0	99.900391 .033332	19.899902 .017646	9.899902 .011112	1.900024 .005264	.900000 .001010	.566675 .000503	.300000 .000100	.100000
m = 2								
0	3.109375 .015945	1.335425 .008735	.914978 .005584	.353766 .002684	.220685 .000520	.161670 .000259	.102405 .000052	.042573
1	199.187500 .100574	39.718750 .063706	19.785645 .046670	3.838379 .029111	1.844299 .011257	1.179065 .007713	.645831 .003312	.241895
m = 3								
0	.929871 .010700	.502130 .005926	.377783 .003808	.178821 .001839	.120807 .000358	.092531 -.000178	.061837 .000035	.027520
1	5.408447 .050192	2.345459 .033610	1.619458 .025342	.649310 .016330	.418365 .006546	.315466 .004520	.211255 .001961	.102985
2	297.812500 .171405	59.408203 .114551	29.605469 .087734	5.764160 .059279	2.782715 .028058	1.787976 .021108	.990356 .011398	.385077
m = 4								
0	.487213 .008173	.292249 .004552	.229504 .002931	.119281 .001419	.083675 .000277	.065453 -.000138	.044873 .000028	.020643
1	1.504846 .034282	.827612 .023420	.630511 .017849	.314246 .011638	.221295 .004730	.175586 .003276	.125232 .001426	.066555
2	7.645752 .087108	3.328369 .062134	2.304688 .049294	.936890 .034713	.611011 .017299	.465668 .013179	.318152 .007248	.163898
3	395.796875 .242871	78.964844 .166553	39.361328 .130267	7.677002 .091390	3.714844 .047505	2.393066 .037307	1.332800 .022378	.527887
m = 5								
0	.321021 .006667	.204358 .003736	.164447 .002410	.090185 .001168	.064644 -.000228	.051184 .000114	.035621 .000022	.016704
1	.755200 .026441	.464081 .018253	.370184 .013984	.204480 .009178	.150287 .003758	.122211 .002606	.089928 .001137	.049905
2	2.055420 .060017	1.139148 .043881	.872351 .035289	.444000 .025262	.317877 .012855	.255658 .009844	.186938 .005455	.105914
3	9.853516 .124713	4.298096 .091779	2.980957 .074633	1.220679 .054854	.801215 .030299	.614032 .024167	.423950 .014850	.224713
4	493.125000 .314368	98.394531 .218823	49.052734 .173297	9.577637 .124255	4.641113 .068154	2.994141 .054846	1.673169 .034915	.669971

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 300 \quad r_2 = 30$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
m=6								
0	.238232 .005708	.157550 .003197	.128772 .002064	.073114 .001001	.053149 -.000195	.042420 .000097	.029809 .000020	.014160
1	.483582 .021764	.316656 .015121	.259412 .011627	.152118 .007660	.114642 .003150	.094591 .002187	.070898 .000955	.040379
2	1.008411 .046529	.626331 .034469	.503076 .027925	.285168 .020170	.213635 .010383	.176471 .007972	.133472 .004436	.079405
3	2.595215 .086407	1.444482 .065354	1.109424 .053977	.571283 .040437	.412689 .022912	.334387 .018402	.247754 .011428	.145221
4	12.040283 .162524	5.258545 .121844	3.650635 .100543	1.501794 .075781	.989655 .044438	.761060 .036399	.528864 .023832	.285229
5	589.812500 .385596	117.703125 .271100	58.681641 .216443	11.465576 .157397	5.561279 .089393	3.591309 .073084	2.011230 .048337	.811255
m=7								
0	.169867 .005014	.128894 .002812	.106525 .001818	.061951 .000882	.045480 -.000173	.036502 .000086	.025827 .000017	.012378
1	.351660 .018657	.239941 .013015	.199969 .010032	.121906 .006626	.093408 .002733	.077822 .001899	.059046 .000830	.034217
2	.635516 .038428	.421600 .028703	.348120 .023362	.210187 .016967	.161792 .008798	.135760 .006769	.104816 .003777	.064236
3	1.255286 .067211	.784497 .051609	.632556 .042989	.363837 .032546	.275555 .018711	.229565 .015087	.176288 .009426	.108844
4	3.128174 .113025	1.745923 .087261	1.343420 .073229	.696948 .056365	.506342 .034022	.412201 .028089	.307990 .018631	.184375
5	14.208984 .200330	6.210938 .152057	4.314941 .126697	1.780591 .097093	1.176563 .059207	.906921 .049344	.632983 .033664	.345435
6	685.875000 .456512	136.875000 .323187	68.246094 .259503	13.341064 .190601	6.475342 .110950	4.184570 .091711	2.347168 .062290	.951660

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 300 \quad r_2 = 30$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m= 8				
0	.158466 .004498	.109698 .002525	.091390 .001633	.054102 .000793	.040005 -.000155	.032245 .000077	.022928 .000015	.011062
1	.275983 .016441	.193774 .011505	.163440 .008882	.102435 .005878	.079397 .002430	.066601 .001689	.050974 .000739	.029905
2	.456726 .033023	.316229 .024804	.265881 .020253	.167346 .014766	.131122 .007694	.111224 .005928	.087044 .003314	.054423
3	.782849 .055644	.523309 .043130	.434143 .036124	.266583 .027536	.207684 .015979	.175952 .012916	.138080 .008100	.088051
4	1.498132 .088135	.940094 .069161	.759961 .058589	.441315 .045632	.336523 .028005	.281934 .023229	.218610 .015522	.138202
5	3.655762 .139697	2.044434 .109363	1.575098 .092760	.821356 .072691	.599084 .045743	.489288 .038459	.367682 .026620	.223309
6	16.361816 .238019	7.156494 .182269	4.974365 .152942	2.057373 .118579	1.362036 .074347	1.051685 .062714	.736401 .044034	.405273
7	731.312500 .527063	155.921875 .375098	77.748047 .302466	15.204590 .223828	7.383545 .132648	4.773926 .110553	2.680908 .076567	1.091235
				m=9				
0	.136646 .004099	.096014 .002303	.080479 .001490	.048295 .000723	.035911 -.000142	.029031 .000071	.020726 -.000014	.010047
1	.227704 .014761	.163287 .010368	.138965 .008014	.088867 .005312	.069485 .002199	.058585 .001530	.045129 .000669	.026719
2	.355170 .029153	.253410 .021965	.215802 .017993	.139880 .013156	.111011 .006881	.094865 .005306	.074976 .002970	.047555
3	.558130 .047890	.389838 .037364	.329504 .031413	.211285 .024061	.167712 .014053	.143695 .011379	.114429 .007156	.074591
4	.927399 .073084	.623056 .057955	.518518 .049393	.321967 .038764	.252789 .024053	.215466 .020009	.170917 .013439	.111774
5	1.738110 .109149	1.093799 .086922	.885840 .074473	.517877 .059111	.396826 .037883	.333746 .032016	.260510 .022352	.167377
6	4.178711 .166339	2.340088 .131519	1.804749 .112415	.944672 .089237	.691028 .057841	.565729 .049252	.426941 .035132	.262006
7	18.499023 .275555	8.095215 .212415	5.628906 .179156	2.332031 .140155	1.546228 .089702	1.195483 .076353	.839087 .054762	.464752
8	876.125000 .597223	174.859375 .426727	87.189453 .345221	17.055908 .256940	8.285645 .154407	5.359375 .129504	3.012695 .091043	1.229895

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 300 \quad r_2 = 30$

m=10

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.120685 .003779	.085792 .002126	.072256 .001375	.043824 .000668	.032729 -.000131	.026525 .000065	.018993 -.000013	.009247
1	.194537 .013492	.141772 .009461	.121478 .007335	.078917 .004866	.062115 .002018	.052577 .001404	.040704 .000614	.024274
2	.290906 .026246	.212201 .019855	.182422 .016277	.120868 .011928	.096838 .006256	.083225 .004826	.066262 .002705	.042485
3	.431274 .042332	.310706 .033187	.266125 .027978	.175952 .021501	.141589 .012622	.122302 .010231	.098425 .006449	.065171
4	.657306 .062985	.461923 .050307	.391760 .043057	.254315 .033977	.203595 .021241	.175616 .0 7711	.141437 .011936	.094678
5	1.069934 .090627	.721478 .072985	.601733 .062943	.376593 .050376	.297314 .032680	.254559 .027711	.203412 .019458	.135394
6	1.975708 .130145	1.246008 .104785	1.010486 .090505	.593683 .072821	.456573 .048135	.385077 .041219	.302069 .029683	.196429
7	4.697510 .192920	2.633545 .153674	2.032471 .132129	1.067004 .105914	.782300 .070177	.641589 .060330	.485748 .044003	.300513
8	20.621094 .312933	9.027344 .242474	6.278809 .205365	2.604980 .161761	1.729199 .105182	1.338232 .090150	.941071 .065728	.523859
9	970.375000 .666949	193.656250 .478088	96.568359 .387793	18.895264 .289929	9.182129 .176196	5.941162 .148486	3.342041 .105640	1.367712

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 400 \quad r_2 = 40$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
m=1								
0	99.900391 .033332	19.899902 .017646	9.899902 .011112	1.900024 .005264	.900000 .001010	.566675 .000503	.300000 .000100	.100000
m=2								
0	3.097656 .015827	1.330176 .008667	.911285 .005541	.352148 .002662	.219586 .000516	.160815 .000257	.101794 .000051	.042287
1	199.359375 .100421	39.751953 .063584	19.801758 .046563	3.841064 .029035	1.845398 .011219	1.179614 .007686	.645984 .003301	.241803
m=3								
0	.922485 .010540	.497864 .005636	.374396 .003750	.176990 .001810	.119495 .000352	.091459 -.000175	.061066 .000035	.027139
1	5.392334 .049760	2.338135 .033298	1.614087 .025094	.646716 .016162	.416473 .006475	.313910 .004470	.210034 .001938	.102222
2	298.312500 .171130	59.505859 .114246	29.654297 .087459	5.772705 .059043	2.786377 .027910	1.790051 .020990	.991150 .011329	.384985
m=4								
0	.461079 .007993	.288251 .004451	.226239 .002867	.117358 .001387	.082226 .000270	.064267 -.000135	.044015 .000027	.020211
1	1.494165 .033740	.821265 .023031	.625415 .017543	.311285 .011432	.219006 .004644	.173633 .003216	.123737 .001399	.065621
2	7.629395 .086319	3.320313 .061508	2.298828 .048764	.933838 .034308	.608661 .017074	.463623 .013004	.316504 .007147	.162738
3	396.781250 .242535	79.160156 .166095	39.457031 .129840	7.694824 .090974	3.722900 .047196	2.397461 .037040	1.334875 .022195	.528040
m=5								
0	.315375 .006496	.200452 .003629	.161182 .002340	.088169 .001134	.063114 -.000221	.049935 .000110	.034709 .000022	.016246
1	.746442 .025842	.458221 .017822	.365302 .013652	.201367 .008953	.147845 .003663	.120105 .002540	.088264 .001108	.048867
2	2.042480 .059050	1.131335 .043122	.866003 .034656	.440155 .024785	.314825 .012596	.253003 .009641	.184772 .005340	.104449
3	9.840332 .123584	4.291260 .090829	2.975830 .073797	1.217627 .054175	.798718 .029863	.611774 .023809	.421997 .014614	.223218
4	494.765625 .314032	98.718750 .218304	49.212891 .172717	9.607422 .123645	4.654541 .067654	3.002197 .054400	1.676953 .034579	.670581

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 400$ $r_2 = 40$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m=6				
0	.232800 .005508	.153674 .003064	.125507 .001991	.071043 .000965	.051570 -.000189	.041119 .000094	.028859 .000019	.013683
1	.475647 .021131	.311011 .014667	.254559 .011272	.148914 .007421	.112048 .003050	.092374 .002117	.069138 .000924	.039279
2	.997620 .045461	.619006 .033641	.496857 .027234	.281079 .019649	.210309 .010101	.173541 .007755	.131091 .004313	.077776
3	2.581055 .085010	1.435754 .064209	1.102283 .052985	.566766 .039641	.408997 .022420	.331152 .017997	.245068 .011165	.143268
4	12.033936 .161090	5.254395 .120593	3.647217 .099409	1.499170 .074816	.987274 .043759	.758801 .035819	.526788 .023420	.283490
5	592.250000 .385382	118.171875 .270551	58.919922 .215771	11.510498 .156665	5.581787 .088711	3.603760 .072447	2.017334 .047822	.812567
				m=7				
0	.184528 .004810	.125018 .002697	.103158 .001742	.059832 .000846	.043858 -.000165	.035167 .000083	.024850 .000016	.011886
1	.344153 .017997	.234387 .012546	.195148 .009664	.118640 .006380	.090753 .002630	.075529 .001827	.057219 .000798	.033073
2	.625751 .037299	.414520 .027829	.341986 .022634	.205975 .016422	.158313 .008505	.132709 .006540	.102283 .003648	.062508
3	1.242896 .065674	.775952 .050353	.625293 .041905	.358923 .031688	.271466 .018184	.225934 .014652	.173236 .009146	.106677
4	3.113525 .111224	1.736768 .085731	1.335852 .071871	.691974 .055235	.502191 .033259	.408508 .027440	.304816 .018173	.181964
5	14.212891 .198627	6.211182 .150531	4.314453 .125293	1.778882 .095846	1.174609 .058276	.904907 .048516	.630969 .033042	.343512
6	789.250000 .456543	137.546875 .322699	68.578125 .258832	13.404297 .189777	6.504639 .110095	4.202393 .090883	2.356201 .061585	.953888

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 400 \quad r_2 = 40$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m=8				
0	.153217 .004290	.105823 .002407	.088039 .001556	.051951 .000755	.038352 -.000148	.030879 .000074	.021932 -.000015	.010559
1	.268719 .015762	.188261 .011024	.158649 .008505	.099096 .005625	.076681 .002324	.064251 .001615	.049100 .000706	.028730
2	.447510 .031848	.309271 .023896	.259808 .019496	.163043 .014202	.127551 .007393	.108051 .005691	.084423 .003180	.052626
3	.771527 .054011	.515009 .041802	.426910 .034980	.261487 .026632	.203381 .015426	.172107 .012462	.134845 .007810	.085720
4	1.484644 .086128	.930634 .067478	.751874 .057105	.435699 .044408	.331793 .027192	.277692 .0 2538	.214978 .015041	.135486
5	3.641602 .137500	2.035156 .107471	1.567468 .091039	.816138 .071222	.594659 .044690	.485260 .037540	.364172 .025941	.220502
6	16.379395 .236127	7.162598 .180499	4.977539 .151263	2.056885 .117084	1.360876 .073153	1.050220 .061638	.734601 .043183	.403290
7	785.812500 .527429	156.812500 .374731	78.191406 .301794	15.288574 .222913	7.422607 .131610	4.798096 .109546	2.693359 .075667	1.094592
				m=9				
0	.131427 .003886	.092104 .002183	.077101 .001411	.046109 .000685	.034232 -.000134	.027646 .000067	.019710 -.000013	.009538
1	.220563 .014087	.157794 .009874	.134143 .007629	.085487 .005054	.066723 .002091	.056189 .001454	.043214 .000636	.025522
2	.346259 .027948	.246533 .021055	.209729 .017219	.135486 .012577	.107349 .006571	.091619 .005064	.072283 .002834	.045708
3	.547368 .046193	.381659 .035991	.322302 .030231	.206036 .023126	.163287 .013484	.139728 .010913	.111072 .006859	.072161
4	.914764 .070955	.613727 .056174	.510339 .047826	.316077 .037478	.247754 .023202	.210950 .019290	.167041 .012939	.108875
5	1.723828 .106677	1.083728 .084820	.877142 .072584	.511713 .057517	.391577 .036761	.328986 .031039	.256390 .021634	.164203
6	4.166016 .163806	2.331543 .129260	1.797437 .110339	.939423 .087437	.686450 .056487	.561517 .048051	.423157 .034205	.258893
7	18.533691 .273511	8.108398 .210461	5.636963 .177264	2.333496 .138416	1.546106 .088249	1.194690 .075018	.837653 .053675	.462799
8	881.875000 .598016	175.984375 .426575	87.755859 .344672	17.163818 .255994	8.336426 .153247	5.390869 .128314	3.028809 .089954	1.234595

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 400 \quad r_2 = 40$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m=10				
0	.115497 .003565	.081859 .002004	.068852 .001296	.041615 .000629	.031028 -.000123	.025125 .000062	.017967 -.000012	.008730
1	.187488 .012786	.136310 .008980	.116626 .006944	.075495 .004605	.059313 .001908	.050147 .001326	.038760 .000581	.023053
2	.282178 .025014	.205365 .018305	.176349 .015487	.116412 .011337	.093103 .005939	.079916 .004581	.063515 .002566	.040597
3	.420848 .040589	.302613 .031776	.258893 .026765	.170642 .020547	.137042 .012039	.118213 .009756	.094968 .006143	.062672
4	.645251 .060765	.452576 .048455	.383551 .041432	.248242 .032645	.198383 .020368	.170917 .016971	.137408 .011425	.091646
5	1.056262 .088009	.711255 .070749	.592737 .060944	.370001 .048699	.291638 .031505	.249402 .026693	.198932 .018714	.131946
6	1.961060 .127277	1.235510 .102252	1.001331 .088222	.587091 .070852	.450867 .046685	.379858 .039939	.297498 .028707	.192798
7	4.687012 .190082	2.625977 .151111	2.025879 .129718	1.061938 .103778	.777692 .068520	.637296 .058837	.481812 .042817	.297131
8	20.675781 .310797	9.049316 .240338	6.292969 .203259	2.608643 .159778	1.730359 .103473	1.338354 .088566	.940155 .064396	.521997
9	977.500000 .668292	195.078125 .478210	97.273438 .387396	19.030029 .289044	9.245605 .174915	5.980957 .147174	3.362793 .104358	1.373938

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 500 \quad r_2 = 50$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m = 1				
0	99.900391 .033332	19.899902 .017646	9.899902 .011112	1.900024 .005264	.900000 .001010	.566675 .000503	.300000 .000100	.100000
				m = 2				
0	3.096870 .015796	1.327002 .009627	.909027 .005514	.351172 .002649	.218915 .000514	.160297 .000256	.101428 .000051	.042115
1	199.453125 .100360	39.771484 .063511	19.811279 .046502	3.842773 .028989	1.846008 .011199	1.179980 .007671	.646075 .003294	.241711
				m = 3				
0	.918030 .010448	.495270 .005783	.372382 .003714	.175891 .001793	.118671 .000349	.090810 -.000174	.060604 .000035	.026910
1	5.382813 .049496	2.333496 .033107	1.610852 .024946	.645129 .016059	.415344 .006431	.312964 .004440	.209332 .001924	.101794
2	299.609375 .170947	59.564453 .114093	29.683594 .087292	5.777832 .058901	2.786574 .027822	1.791333 .020917	.991638 .011283	.384924
				m = 4				
0	.477356 .007807	.285840 .004390	.224255 .002827	.116199 .001367	.081352 .000267	.063553 -.000133	.043496 .000026	.019954
1	1.487794 .033416	.817419 .022798	.622333 .017360	.309485 .011310	.217633 .004592	.172473 .003179	.122821 .001384	.065060
2	7.619385 .085846	3.315674 .061131	2.295410 .048444	.931976 .034064	.607227 .016941	.462402 .012897	.315497 .007086	.162067
3	497.375000 .242241	79.277344 .165551	39.515625 .129565	7.705322 .090723	3.727539 .047005	2.400391 .036880	1.336096 .022081	.528131
				m = 5				
0	.311957 .006342	.198108 .003564	.159198 .002298	.086956 .001113	.062195 -.000217	.049180 .000108	.034160 .000022	.015972
1	.741132 .025480	.454651 .017566	.362341 .013450	.199512 .008819	.146350 .003607	.118823 .002500	.087261 .001090	.048241
2	2.034668 .058466	1.126575 .042664	.862139 .034274	.437836 .024499	.312964 .012439	.251416 .009519	.183490 .005270	.103564
3	9.832275 .122913	4.287109 .090257	2.972656 .073294	1.215796 .053763	.797192 .029603	.610431 .023591	.420837 .014473	.222302
4	495.734375 .313818	98.912109 .217969	49.308594 .172382	9.625244 .123309	4.662842 .067356	3.007080 .054129	1.679211 .034373	.670978

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 500 \quad r_2 = 50$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m=6				
0	.229535 .005390	.151324 .003016	.123492 .001947	.069794 .000944	.050616 -.000184	.040337 .000092	.028287 .000018	.013397
1	.470856 .020746	.307593 .014392	.251660 .011058	.146960 .007278	.110492 .002991	.091035 .002075	.068074 .000906	.038615
2	.991089 .044820	.614551 .033141	.493103 .026819	.278607 .019340	.208295 .009933	.171802 .007623	.129657 .004239	.076796
3	2.572510 .084167	1.430444 .063519	1.097949 .052386	.564050 .039165	.406769 .022126	.329155 .017753	.243420 .011009	.142078
4	12.029785 .160236	5.251953 .119830	3.645264 .098726	1.497583 .074232	.985840 .043355	.757458 .035464	.525568 .023168	.252422
5	593.687500 .385260	118.468750 .270215	59.064453 .215375	11.537598 .156207	5.594238 .088295	3.6 1328 .072065	2.020996 .047509	.813361
				m=7				
0	.181323 .004627	.122668 .002627	.101184 .001697	.058558 .000824	.042882 -.000161	.034362 .000080	.024263 .000016	.011592
1	.339636 .017601	.231030 .012264	.192249 .009443	.116656 .006231	.089149 .002568	.074144 .001783	.056117 .000779	.032386
2	.619800 .036620	.410217 .027299	.338293 .022195	.203412 .016094	.156177 .008329	.1 0847 .0 6405	.100757 .003570	.061467
3	1.235227 .064743	.770764 .049596	.620298 .041253	.355963 .031169	.268994 .017868	.223767 .014392	.171405 .008978	.105334
4	3.104736 .110126	1.731213 .084308	1.331213 .071051	.688953 .054553	.499695 .032802	.406281 .027047	.302924 .017898	.180530
5	14.219332 .197670	6.211426 .149585	4.213965 .124438	1.777844 .095094	1.173450 .057711	.903717 .048020	.629749 .032664	.342352
6	691.312500 .456543	137.953125 .322424	68.781250 .258405	13.442383 .189258	6.522217 .109546	4.213379 .090383	2.361572 .061158	.955231

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

$r_1 = 500 \quad r_2 = 50$

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
				m=8				
0	.150043 .004164	.103473 .002336	.086017 .001510	.050654 .000733	.037356 -.000143	.030059 .000072	.021329 -.000014	.010257
1	.264325 .015354	.184955 .010730	.155719 .008278	.097082 .005474	.075045 .002260	.062836 .001571	.047967 .000687	.028020
2	.441895 .031142	.305060 .023347	.256116 .019043	.160419 .013862	.125354 .007210	.106128 .005550	.082840 .003100	.051543
3	.764630 .053023	.509943 .041005	.422516 .034293	.258374 .026090	.200757 .015094	.169788 .012191	.132892 .007637	.084316
4	1.475343 .084913	.924896 .066464	.746960 .056208	.432312 .043671	.328955 .026700	.275128 .022123	.212781 .014751	.133836
5	3.633057 .136108	2.027765 .106311	1.562830 .090002	.812964 .070337	.591943 .044057	.482819 .036983	.362036 .025529	.218823
6	16.359833 .234998	7.166016 .179431	4.973492 .150256	2.056641 .116168	1.360144 .072428	1.049243 .060986	.733502 .042672	.492069
7	788.500000 .527643	157.359375 .374518	75.458984 .301397	15.339600 .222363	7.446533 .131000	4.612744 .108936	2.700684 .075121	1.096606
				m=9				
0	.128284 .003709	.089741 .002110	.075060 .001365	.044797 .000663	.033221 -.000130	.026815 .000064	.019100 -.000013	.009233
1	.216260 .013671	.154468 .009578	.131213 .007398	.083446 .004893	.065056 .002026	.054747 .001408	.042062 .000616	.024797
2	.340857 .027223	.242352 .020494	.206036 .016750	.132831 .012229	.105121 .006384	.089657 .004920	.070658 .002752	.044595
3	.540857 .045171	.376685 .035163	.317908 .029519	.202863 .022565	.160602 .013141	.137317 .010631	.109058 .006679	.070696
4	.907074 .069668	.608051 .055058	.505365 .046880	.312476 .036704	.244702 .022691	.208203 .018856	.164691 .012638	.107104
5	1.715100 .105212	1.077563 .083546	.871832 .071444	.507959 .056552	.388373 .036082	.326086 .030448	.253888 .021203	.162250
6	4.158203 .162256	2.326416 .127917	1.792981 .109119	.936218 .086346	.683673 .055670	.558354 .047326	.420868 .033649	.257031
7	18.554688 .272290	6.116455 .209271	5.641846 .176135	2.334229 .137347	1.546045 .087368	1.194202 .074213	.836768 .053015	.461578
8	385.312500 .598474	176.687500 .426483	88.097656 .344336	17.229248 .255444	8.366943 .152545	5.410156 .127612	3.038574 .089294	1.237463

TABLE II

PERCENTILES OF THE DISTRIBUTION FUNCTION $G_m(k; r_1, r_2)$

r_1 =500 r_2 =50

m=10

K/G	.001000 .750000	.005000 .850000	.010000 .900000	.050000 .950000	.100000 .990000	.150000 .995000	.250000 .999000	.500000
0	.112354 .003435	.079485 .001931	.066799 .001248	.040288 .000607	.030005 .000119	.024278 .000059	.017349 -.000012	.008421
1	.133215 .012367	.132983 .008678	.113696 .006710	.073427 .004448	.057623 .001842	.048680 .001281	.037589 .000560	.022317
2	.276898 .024274	.201215 .018333	.172656 .015010	.113722 .010982	.090849 .005750	.077917 .004434	.061856 .002483	.039462
3	.414612 .039535	.297681 .030925	.254529 .026033	.167407 .019969	.134296 .011688	.115741 .009468	.092878 .005960	.061165
4	.637897 .059428	.446960 .047341	.378546 .040448	.244550 .031844	.195239 .019840	.168048 .016521	.134937 .011112	.089813
5	1.047900 .086429	.705029 .069401	.587274 .059737	.366003 .047684	.288190 .030795	.246289 .026078	.196216 .018268	.129871
6	1.952087 .125537	1.229102 .100757	.995789 .086841	.583063 .069664	.447388 .045811	.376715 .039165	.294720 .028116	.190570
7	4.680664 .188342	2.621338 .149554	2.021973 .128284	1.058826 .102496	.774864 .067520	.634662 .057932	.479401 .042100	.295087
8	20.710938 .309515	9.062500 .239056	6.301514 .202008	2.610840 .158557	1.731091 .102435	1.338477 .087608	.939606 .063591	.520898
9	981.812500 .669116	195.937500 .478302	97.701172 .387152	19.111572 .288495	9.283936 .174121	6.004863 .146350	3.375244 .103595	1.377722

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ABSTRACT

As in the Polaris A3 program, whenever extensive test data collected under non-environmental conditions must be used to infer results valid under environmental conditions, the problem of estimation of a correction factor to transform non-environmental results into environmental ones will arise. In the Polaris A3 program, the ratio of mean times under environmental and non-environmental conditions was termed the K-factor. This report presents a solution to the problem of building exact confidence intervals for the K-factor for the case when time is measured in cycles. This was the remaining open question in the problem of point and interval estimation of the K-factor.

KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
K-factor Estimation						
Statistical Estimation						
Confidence Intervals						
Ratio of Bernoulli Parameters						

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